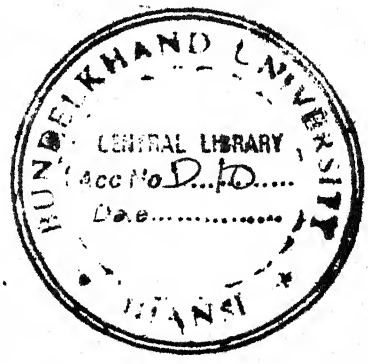
HISTOPATHOLOGICAL STUDY OF TUMOURS AND TUMOUR LIKE NASAL MASSES – A PROSPECTIVE AND RETROSPECTIVE STUDY

THESIS
FOR
DOCTOR OF MEDICINE
(PATHOLOGY)



BUNDELKHAND UNIVERSITY
JHANSI (U.P.)

2007 **ARCHANA**

DEPARTMENT OF PATHOLOGY

M.L.B. Medical College, Jhansi (U.P.)

CERTIFICATE

This is to certify that the work entitled "***Histopathological study of tumours and tumour like nasal masses – A prospective and retrospective study***" which is being submitted as thesis for M.D. (Pathology) Examination 2007 of the Bundelkhand University, Jhansi, has been carried out by **Dr. Archana** in the Department of Pathology, M.L.B. Medical College, Jhansi.

This method described was undertaken by the candidate herself and the observations recorded have been periodically checked by me. She has put in the necessary stay in the department as per university regulations.

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This work fulfils the basic ordinances governing the submission of thesis laid down by Bundelkhand University, Jhansi.

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Acknowledging gratitude is not a mere ritual, for me it is a means by which I wish to thank all my benefactors who have guided, helped, encouraged and instilled confidence in me to complete this thesis.

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I pay my sincere regards to my parents & in laws for the love and affection they bestowed upon me. Their teachings of perseverance, honesty and hard work have helped me to perform this study, as it has helped me with everything else in life.

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It is the endowment of spiritualism and remembrance of almighty, who emboldened me and bestowed his king benevolence in carrying out this work. May he always be there in the hour of need.

Dated : 6-12-06

Archana.

(Archana)

CONTENTS

Introduction

Introduction

During the last few decades, tremendous advances has been made in various fields of medicine. New concepts have broadened out our outlook in understanding many obscure and complicated problems.

One of the most important vital and interesting fact about human beings is that they are equipped with sense organs through which they keep in contact with the world around them.

Nose is one of the important sensory organ concerned with smell and other important functions. Nose and nasal cavity constitute a common site for polypoidal masses, granulomatous lesions as commonly encountered clinical and pathological entities revealing wide spread histopathological spectrum on histopathology.

The incidence of nasal masses and especially nasal polyps is approximately 1 to 4% (Bateman et al, 2003); commonly affecting males. No age is bar. The incidence is continuously on the rise because of exposure to various industrial pollutants, occupational hazards and various environmental factors and viruses (Jerome B Taxy, 1996).

Polypoidal and Granulomatous masses in the nasal cavity can be inflammatory (chronic polypoidal sinusitis), bacterial (Rhinoscleroma, Tuberculoma, Leprosy), Fungal (Rhinosporidiosis, Aspergillosis) etc.

Benign tumours excluding polyps include papillomas, schwanomas, meningioma, haemangioma and others. Malignant tumours of nasal cavity are not very common, still constitute a important cause of nasal obstruction, morbidity and mortality. Malignant tumours occur in the form of adenocarcinoma, squamous cell carcinoma, melanoma and

various sarcomas. Sometimes paranasal sinuses tumours present as a protruding nasal mass. (Friedmann and Osborn, 1976).

Nasal masses have been studied by different workers viz cases of Rhinosporidiosis have been studied by Minchin et al (1905), Tirumurti (1914), Sengupta SK (1957), Purandare and Deoras (1953), Satyanarayana (1960), Dube and Veliath (1964), Allen and Dave (1956), Sammadar and Sen (1990), 3 cases of Rhinoentomophthoromycosis have been studied by Pai et al (1993); cases of Rhinoscleroma have been studied by Handousa (1958), Derapa KP (1965), Yassin et al (1966); cases of Tuberculoma have been studied by Mesolella (1965), Ahmed Hakeem (1958).

Nasal polypoidal masses - 344 cases reported by Das Gupta et al (1996); 38 cases by Alyea (1966), 113 cases by Dandapath et al (1993). A case of hairy polyp have been reported by Phansalkar et al (2000).

Cancer of the nasal cavity or paranasal sinuses is a relatively rare problem with a yearly risk factor estimated at approximately one case for every 100,000 people. These cancers occur more often in men (2 to 1) and usually appear after the age of 40. Nasal cavity and ethmoid sinus adenocarcinomas have been linked to occupations associated with wood dust, those in the furniture industry, sawmill work and carpentry. Other occupations with dust filled work environments such as shoe making, baking and flour milling also have been implicated as a cause of adenocarcinomas. Thorotrast, containing the radioactive metal thorium, is a known etiologic agent in maxillary sinus carcinomas. Almost all malignant tumours arising in the nasal vestibule are squamous cell

carcinomas; basal cell carcinomas and adnexal carcinomas are also reported. (Mendenhall et al, 2000).

Frequently encountered neoplasm of nasal cavity and paranasal sinuses are of epithelial origin- squamous cell carcinoma and adenocarcinoma. Mesodermal tumours are uncommon neoplasms include osteosarcoma, fibrosarcoma, chondrosarcoma and lymphoma.

A case of fibroangiomyxosarcoma in nasal fossa in 8 year girl has been reported by Perrino (1960), a case of Hemangiopericytoma of nasal cavity studied by Mangwana et al (1996), 3 cases of Sinonasal teratocarcinoma have been studied by Pai et al (1997).

Neoplastic lesions of the nose - 410 cases reported by Bhardwaj et al (1997); 97 cases (23.6%) were found to be neoplastic and the remaining 313 cases (76.4%) were inflammatory.

Methods used for the diagnosis of nasal masses include commonly used routine diagnostic procedures as well as specialized methods including X-Ray, cytopathology and biopsy. In suitable cases are subjected to immunohistochemical methods as diagnostic tool. Insulin like growth factor I has been demonstrated in nasal polyps in the form of immunoreactivity - Petruson et al (1988).

Above all histopathological diagnosis remains a useful proper criteria for the diagnosis and management of such patients.

Literature testifies to the rarity of such kind of work ever attempted in "Bundelkhand region of U.P.", hence the present study is being undertaken.

Aims & Objectives

Aims and Objectives

Present study is being undertaken with the following aims and objectives -

i) To study the incidence and prevalence of tumour and tumour like lesions of nasal cavity and categorize them histopathologically.

ii) To know the incidence of malignant lesions of nasal cavity.

Review of Literature

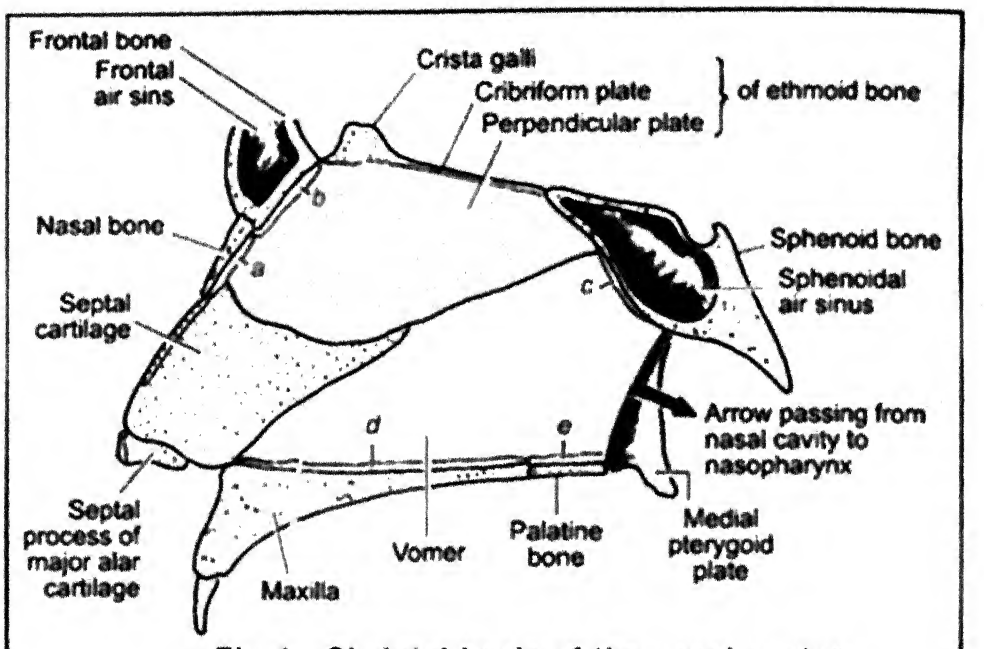

Fig-1 : Skeletal basis of the nasal septum

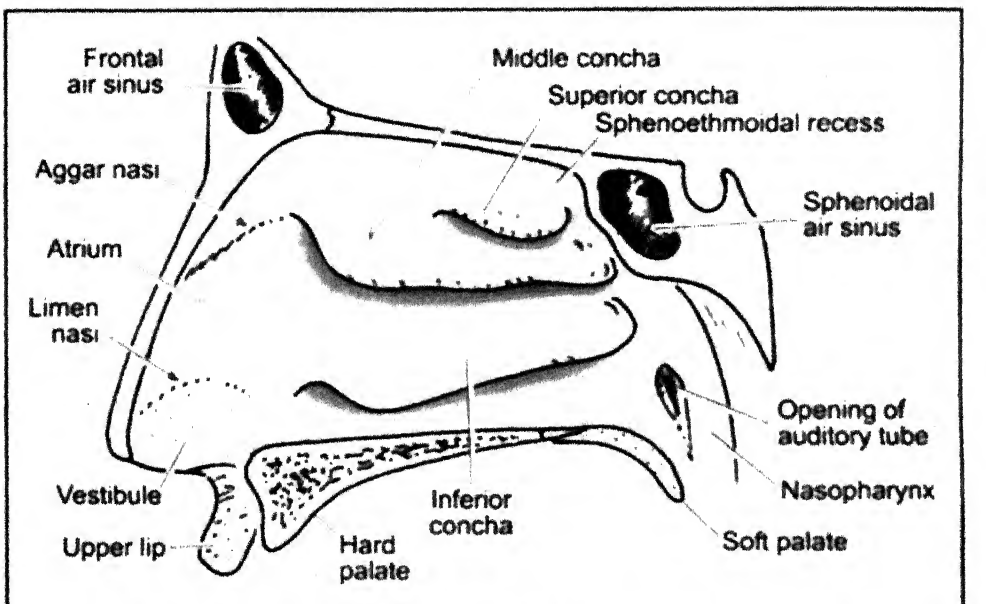

Fig-2 : Lateral wall of the nasal cavity with the mucous membrane intact

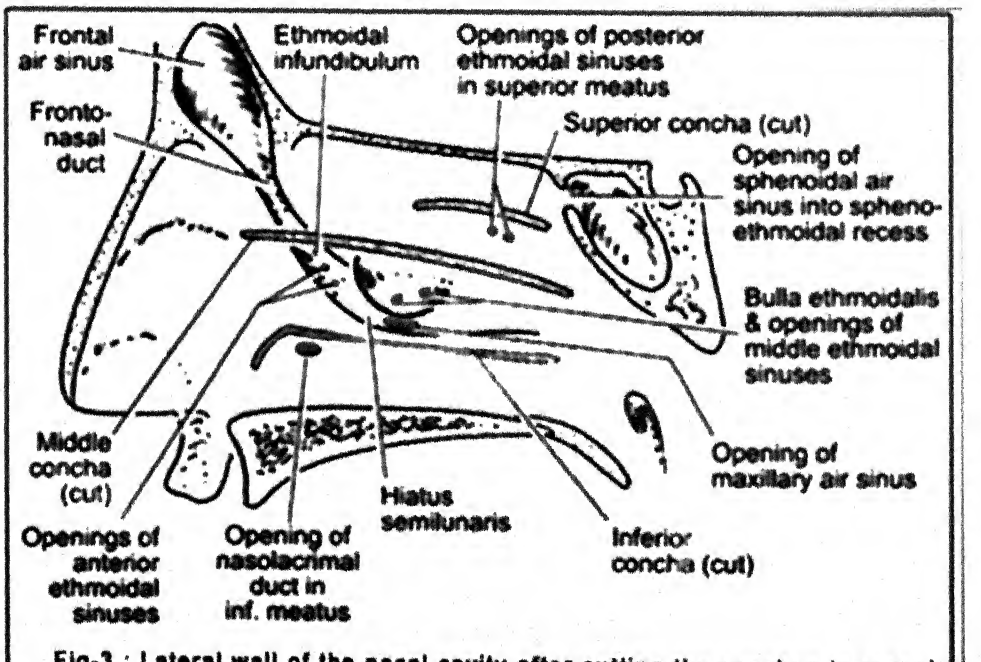

Fig-3 : Lateral wall of the nasal cavity after cutting the conchae to reveal structures deep to them

Review of Literature

Nose is a hollow organ covered with skin, provided with muscles, supported by cartilage, bone and lined with a mucous membrane. The nose is subdivided into two nasal cavities by the cartilaginous nasal septum (Young et al, 2002). Each nasal cavity consists of a vestibule, respiratory and olfactory regions. (Fig – 1, 2, 3)

The anterior half to two third of the vestibular part of the lateral wall of the nose is lined by an extension of epidermis, provided with sebaceous and sweat glands and short hairs, the vibrissae. Posterior part of the vestibule is lined by non keratinized, stratified squamous epithelium which merges back with the respiratory epithelium. The movable nasal columella that separate nostrils – is covered with skin, which merges through a narrow, non keratinized zone of stratified squamous epithelium into the respiratory tract epithelium of septum (Friedmann and Osborn, 1976).

The mucosa of respiratory passage of the nose also known as schneiderian membrane is lined by pseudostratified columnar ciliated epithelium with numerous goblet cells; supported by richly vascular lamina propria containing serous and mucous glands (Young et al, 2002). (Fig – 4)

Paranasal sinuses are also lined by respiratory epithelium. Both nasal mucosa and that of sinuses often contains scattered lymphocytes, plasma cells and macrophages (Friedmann and Osborn, 1976).

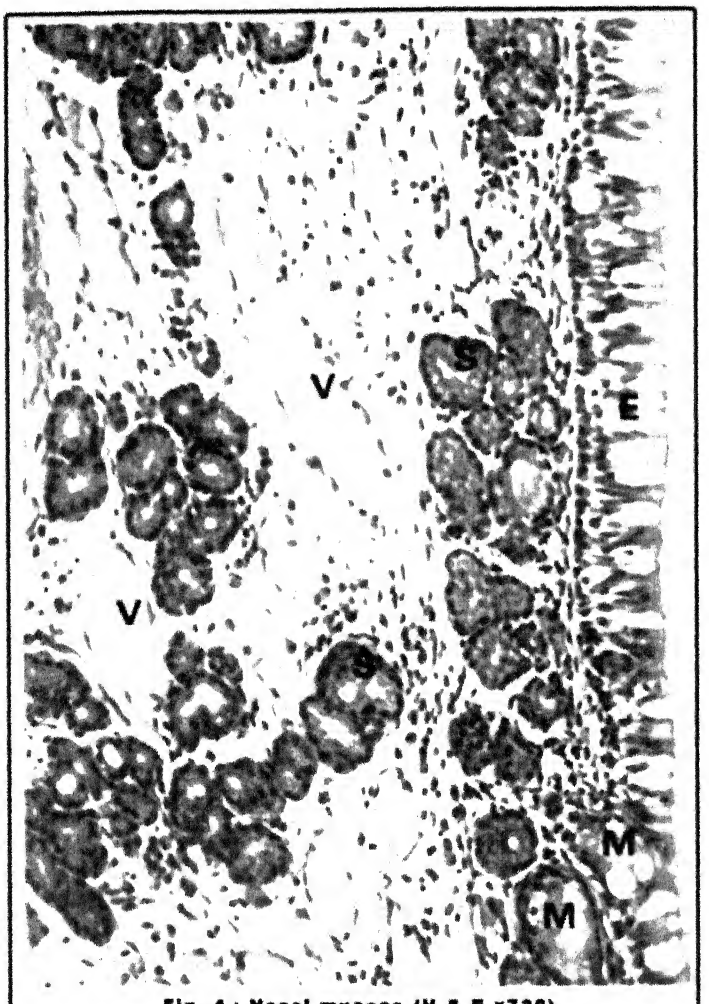

Fig- 4 : Nasal mucosa (H & E ×720)
(E-Pseudostratified ciliated epithelium; M- Mucous glands; V-Venules; S- Serous glands)

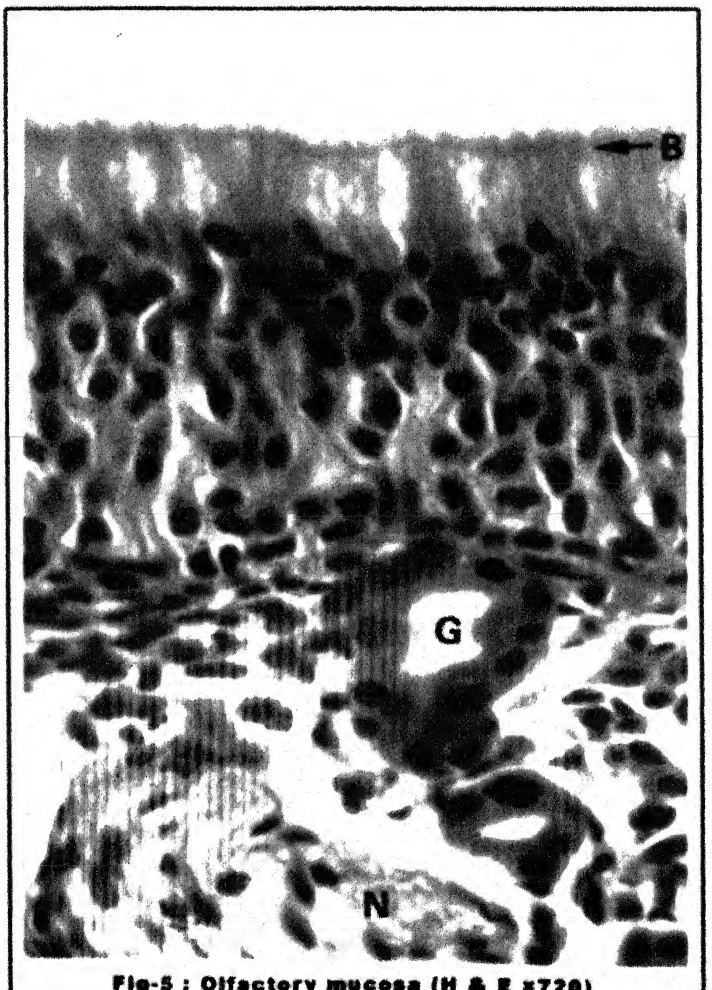

Fig-5 : Olfactory mucosa (H & E ×720)
(G- Bowman's gland; N- nerve fibres; B- terminal bar)

Olfactory area of the nose include upper one third of the mucosa of the septum, region opposite to the superior concha, the corresponding part of the very narrow roof of the nasal cavity and mucosa above, upper and medial aspects of superior concha itself (Friedmann and Osborn, 1976). (Fig – 5).

The olfactory mucosa is lined by ciliated, bipolar olfactory neural cells that connects to the central olfactory apparatus (Jerome B. Taxy, 1996).

Nose arises during the 4th week of the gestation as a frontonasal elevation and by the end of the 6th week develop into definitive nasal cavities. (Jerome B Taxy, 1996).

Nose and paranasal sinuses are inflicted with inflammatory conditions – acute and chronic rhinitis, sinusitis including chronic hypertrophic rhinitis, chronic atrophic rhinitis and ozaena, fungal infections, tuberculosis & leprosy. Polypoidal masses in the form of nasal polyps is the fairly common condition involving nose and paranasal sinuses. Polyps were firstly described by Hippocrates (460-377 BC) and were known as "Nasarsah" in the ancient times.

Benign and malignant tumours of nasal cavity are not very common still constitute a important cause of nasal obstruction, morbidity and mortality. Benign tumour excluding polyps include papilloma, schwannoma, meningioma, hemangioma etc, where as malignant tumours are observed in the form of squamous cell carcinoma, adenocarcinoma, melanoma and various sarcomas. Sometimes paranasal sinus tumours present as a protruding nasal mass.

The various lesions of the nose include –

1. Congenital abnormalities (Friedman & Osborn, 1976).
    a. Saddle nose
    b. Hump nose
    c. Deviated nose
    d. Stenosis and atresia of nose
2. Inflammatory and infectious conditions (Friedman & Osborn, 1976).
    a. Rhinitis and sinusitis
        i. Acute rhinitis
        ii. Chronic non specific rhinitis
        iii. Allergic rhinitis
        iv. Acute sinusitis
        v. Chronic sinusitis
    b. Nasal polyps
        i. Inflammatory
        ii. Allergic
    c. Chronic specific infective rhinitis
        i. Bacterial
            1. Tuberculosis
            2. Leprosy
            3. Syphilis
            4. Rhinoscleroma
            5. Lupus

ii. Fungal

1. Candidiosis
2. Phycomycosis
3. Aspergillosis
4. Rhinosporidiosis
5. Leishmaniasis
6. Rhinophyma

iii. Non healing nasal granuloma of unknown cause

1. Wegener's disease
2. Stewart granuloma

3. Tumours and tumour like condition of nasal cavity and paranasal sinuses (WHO 1978)

a. Epithelial tumours

i. Benign

1. Squamous cell papilloma
2. Transitional papilloma
    a. Exophytic
    b. Inverted
3. Adenoma
4. Oxyphilic adenoma (Oncocytoma)
5. pleomorphic adenoma (mixed tumour)

ii. Malignant

1. Squamous cell carcinoma
2. Verrucous (squamous) carcinoma

3. Spindle cell (squamous) carcinoma
4. Transitional carcinoma
5. Adenocarcinoma
6. Mucinous adenocarcinoma
7. Adenoid cystic carcinoma
8. Mucoepidermoid carcinoma
9. Others
10. Undifferentiated carcinoma

b. Soft tissue tumours

i. Benign

1. Hemangioma
2. Hemangiopericytoma
3. Neurofibroma
4. Neurilemmoma
5. Myxoma
6. Fibroxanthoma
7. Others

ii. Malignant

1. Malignant hemangiopericytoma
2. Fibrosarcoma
3. Rhabdomyosarcoma
4. Neurogenic sarcoma
5. Malignant fibroxanthoma
6. Others

c. Tumours of Bone & Cartilage

i. Benign

1. Chondroma
2. Osteoma
3. Ossifying fibroma
4. Others

ii. Malignant

1. Chondrosarcoma
2. Osteosarcoma
3. Others

d. Tumours of lymphoid and haematopoietic tissues

i. Malignant lymphomas

1. Lymphosarcoma
2. Burkitts tumour
3. Reticulosarcoma
4. Plasmacytoma
5. Hodgkins disease

e. Miscellaneous tumours

i. Benign

1. Teratoma
2. Meningioma
3. Odontogenic tumours
4. Melanotic neuroectodermal tumour
5. Others

ii. Malignant

1. Malignant melanoma
2. Olfactory neurogenic tumours (Esthesioneurogenic)
3. Others

f. Secondary tumours

g. Unclassified tumours

h. Tumour like lesions

i. Pseudoepitheliomatous hyperplasia

ii. Oncocytic metaplasia and hyperplasia

iii. Cysts

iv. Mucocele

v. Angiogranuloma (granuloma pyogenicum)

vi. Nasal polyp

vii. Fibromatosis

viii. Fibrous dysplasia

ix. Giant cell "reparative" granuloma

x. Infective granuloma

xi. Cholesterol granuloma

xii. Lethal midline granuloma (Stewarts granuloma)

xiii. Wegener's granulomatosis

xiv. Nasal glial heterotopia (nasal "glioma")

xv. Meningocele /meningo-encephalocele

INFLAMMATORY AND INFECTIOUS CONDITION OF THE NOSE

(Friedmann & Osborn, 1976)

A. RHINITIS AND SINUSITIS

Rhinitis and sinusitis are the most frequently encountered of all pathologic conditions and are the common cause of sneezing, rhinorrhea and obstruction of airways.

The commonest form of acute rhinitis (acute coryza) primarily a viral infection and is the common cause of rhinorrhea, sneezing, fever. Recurrent attacks of acute rhinitis in the presence of predisposing factors (sinusitis, tonsillitis, adenoids, chronic irritation from dust, smoke, cigarette, snuff) leads to chronicity. Histologically the surface mucosa shows a spectrum of changes including thickening of mucous membrane and hyperplasia of mucous glands. The inflammatory infiltrate composed of eosinophils, neutrophils, lymphocytes, plasma cells and histiocytes (Friedmann and Osborn, 1976).

Acute inflammation of nasal sinuses is almost always the result of extension of infections from the nose itself, rarely due to swimming and diving, trauma and dental infections. Acute infection lasting for months or years is called chronic sinusitis. Histologically surface mucosa exhibits basal cell hyperplasia, squamous metaplasia, atypia, ulceration and regeneration. The inflammatory infiltrate is composed of eosinophils, neutrophils, lymphocytes, histiocytes and plasma cells (Fu and Perzin, 1997).

B. NASAL POLYPS

Nasal polypi is the most frequently encountered of all pathologic conditions, both in the clinic and laboratory and most commonly present as nasal mass. Friedmann et al (1976) subgroups polypi into allergic and non allergic while Wilkes (1978) into inflammatory and allergic. Allergic polyps most frequently occur in the turbinate and ethmoid regions while choanal polyps found in the posterior nasal cavity. Histologically the surface ciliated respiratory epithelium shows several abnormalities including basal cell hyperplasia, squamous metaplasia, atrophy and ulceration. Connective tissue stroma is edematous infiltrated by infiltrate including neutrophils, eosinophils, lymphocytes and plasma cells.

Dysplastic epithelial changes in nasal polyps reported by Bustill (1978) and Granulomas in nasal polyp studied by Bustill (1975).

Petruson et al (1988) noted insulin like growth factor I immunoreactivity in nasal polyps.

Norlander et al (1993) studied formation of mucosal polyps in the nasal and maxillary sinus cavities by infection.

Epithelial atypia and squamous metaplasia in nasal polyps noted by Baird et al (1998).

C. RHINOSPORIDIOSIS

Rhinosporidiosis is a chronic infection caused by rhinosporidium seeberi, causing polypoidal lesion in the nasal cavity characterized by the presence of thick walled sporangia measuring 50-350 microns in diameter and containing numerous spores associated with a heavy chronic

inflammatory reaction with occasional foci of suppuration and foreign body giant cells (Shanmugaratnam, 1978).

This condition has been reported by various authors like – Minchin et al (1905), Tirumurthi (1914), Sengupta SK (1957), Purandare and Deoras (1953), Satyanarayan (1960), Dube and Veliath (1964), Sammaddar and Sen (1990), Mohan et al (1995), Makannavar and Chavan (2001).

According to Kunnam Kutty (1963) disease is commonly seen in the age group of 20-40 years of age.

Disease is transmitted through droplet infection, by close contact with animals and bathing and diving in contaminated water (Makannavar and Chavan, 2001).

D. RHINOSCLEROMA

Rhinoscleroma is caused by gram negative coccobacillus, Klebsiella rhinoscleromatis. They are characterized by heavy infiltration by plasma cells, lymphocytes and large macrophages with abundant clear or vacuolated cytoplasm (Mikulicz cells). There are also numerous russel bodies.

Rhinoscleroma has been reported by various authors such as Ardoin et al (1957), Barilyak (1962), Fisher (1964), Khiga (1965), Derapa (1965) and Yasin et al (1966).

Fisher et al (1964) mentioned that electron microscopy clearly reveals bacillary form within large vacuolated cells corresponding to mikulicz cells.

Yassin et al 1966 reported a squamous cell carcinoma change in a case of rhinoscleroma.

E. TUBERCULOSIS

It is very rare in the nose and present in the form of polypoidal or a tumour like mass. Microscopic picture shows typical tubercles as elsewhere in the body.

Ahmed Hakeem (1958) reported a case of tuberculosis in 20 years old pregnant lady.

F. LEPROSY

Leprosy (usually the lepromatous form) may involve the mucous membrane of nasal cavity and nasopharynx. Histologically the tissues are infiltrated by chronic inflammatory cells including variable numbers of large somewhat foamy macrophages (Lepra cells) with the acid fast stain mycobacterium lepra can usually be demonstrated in lepra cells cytoplasm.

BENIGN LESIONS / TUMOURS OF NOSE (Friedmann & Osborn, 1976)

Ratio of benign to malignant tumours in the nasal cavities is about six to one while in the nasal sinuses the ratio has been almost exactly the reverse of these figures (Friedmann & Osborn, 1976). Honso (1965) found 1 benign for every 3 malignant tumours in the nasal cavity. Most of the benign tumour presented with blocked nose and episodes of epistaxis.

A. PAPILLOMAS

These tumour are generally polypoid. They may be further classified into inverted and exophytic papillomas.

The fungiform or exophytic type typically occurs on nasal septum has a papillary or exophytic growth with fibrovascular cores and affects younger patients than inverted papillomas. The proliferating cells are similar to those of inverted papillomas, including mature squamous cells.

Inverted papillomas presented with a variety of nonspecific symptoms (nasal stuffiness, fullness, rhinorrhea and epistaxis) and found most often on lateral nasal wall. Histologically, inverted papillomas show a variable proliferation of basal cells, thickened epithelium, squamous metaplasia and koilocytic changes.

Kraft et al (2000) documented role of Human papilloma virus (HPV) in sinonasal papillomas.

Disease is more common in men past the age of 40 years. Osborn (1956), Verner et al (1959).

Osborn DA (1956) mentioned that condition was almost confined to one side only.

Histological evidence of malignancy was observed by various authors, Hellman (1897), Ringertz (1938), Austin J Smith (1963) and Lampertico (1963).

B. HEMANGIOMA

Hemangiomas are found most often in the anterior nasal septum, followed by turbinates and vestibule. Capillary hemangiomas are seen most frequently while cavernous hemangiomas are identified less often.

In nasal regions angioma has its peak incidence in 5^{th} and 6^{th} decades (Friedmann & Osborn, 1976).

Microscopically well formed capillaries are arranged in a lobular pattern, the intervening connective tissue is of varying density but often rather odematous. Lesions in which there is heavy inflammatory infiltrate are known as "pyogenic granuloma".

Osborn (1959) studied 51 cases and hold that majority of the cases occur in 5^{th} decade and there is no significant sex difference.

C. ANGIOFIBROMA (JUVENILE ANGIOFIBROMA)

It is a disease pre-eminently of boys. It is rare before the age of 10 years. The neoplasm occurs almost exclusively in the nasopharynx of young males in the 10-25 years of age group. Clinically angiofibromas produce nasal obstruction, epistaxis and massive haemorrhage.

Microscopically, these tumour are composed of a characteristic fibrous stroma in which are found numerous blood vessels of various sizes and shapes (Fu and Perzin, 1997).

D. NEURILEMMOMA (SCHWANNOMA)

Neurilemmoma rarely involve the nasal cavity and paranasal sinuses. Benign tumour of schwann cells is usually well demarcated or encapsulated.

Microscopically, characteristic Antoni type A pattern with regimentation of the nuclei in twisted rows or palisades (verocay bodies) and an Antoni type B pattern with loosely arranged cells with in a wide meshed microcystic fibrillar stroma may be recognized (Shanmugaratnam and Sobin, 1978).

MALIGNANT LESIONS / TUMOURS OF NASAL CAVITY (WHO, 1978)

Cancer of nasal cavity or paranasal sinuses is a relatively rare problem with a yearly risk factor estimated at approximately one case for every 100,000 people. These cancers occur more often in men (2 to 1) and usually after the age of 40 except for tumours of minor salivary gland origin and esthesio neuroblastomas, which may appear before the age of 20 (Devita et al, 2000).

Mac comb and Martin's (1942) concluded that mean age for malignant nasal tumours is 55 years and is more common in males than females.

Sino-nasal tumours are infrequent but include the entire gamut of both epithelial and mesenchymal benign and malignant neoplasms (Vaideeswar et al, 1999).

Wille found that only 1.62% of the cancer patients suffered form malignant tumours of the nose and accessory sinuses.

Edgar L Frazell et al (1963) mentioned that cancer of the nasal cavity and sinuses comprised approximately 3% of all cases of malignant tumours in the upper alimentary and respiratory tracts. Out of these 3% cases, 27.1% occurred in the nasal cavity alone.

There is evidence that occupational exposure to certain inhaled irritants – chromium, nickel, arsenic, wood dust, sawmill work, leather, and carpentary is a causative factor in some cases (Willis, 1967).

Newman (1890) reported a large adenocarcinoma of the nares of a man aged 47 years who had worked for 20 years in a chromate plant.

Stephens (1933), Bridge (1939), Morgan (1958) and others referred to cases of nasal cancer in nickel workers.

Keen et al (1955) reported a high incidence of nasal carcinomas among South African Bantu who habitually take a snuff made from burnt plant stems, which contains benzpyrene.

The effect of thoroatrast, containing radioactive metal thorium has been well studied and there is association between thoroatrast and maxillary sinus carcinoma (Devita et al, 2000).

Little is known about the pathogenesis of carcinomas of nasal cavity and nasal sinuses. Lewis and Castro (1972) reported that previous inflammatory lesions may predispose to the development of carcinoma.

Hasegawa (1988) reported malignant transformation of nasal polyp.

Parrott LH (1994) reported extramedullary plasma cytoma in a benign appearing nasal polyp in 52 year old white male.

Carcinomas – squamous carcinomas, carcinomas of transitional type, anaplastic carcinomas and adenocarcinomas – account about 50 percent of malignant tumours of nasal cavities. In the nasal sinuses they account for about 80%.

Clinically, malignant tumours involving the upper respiratory tract produce nonspecific symptoms including nasal obstruction, epistaxis, nasal discharge and pain. They readily spread by direct extension into adjacent structures – sinuses, cranial cavity and orbital cavity.

A. SQUAMOUS CELL CARCINOMA

In the nasal cavity about 75% of carcinomas are squamous and arise anteriorly. Because of their situation these tumours are diagnosed earlier and have better prognosis than those arising in nasal sinuses. Carcinomas that arise farther back in the nasal cavities are equally divided between transitional and anaplastic growth with only an occasional adenocarcinoma (Friedmann & Osbon, 1976).

The involvement of human papillomavirus is suggested by the histologic observation of koilocytotic change within the squamous mucosa associated with nasal squamous carcinoma and by studies using the technique of modern molecular biology (Jerome B Taxy, 1996).

Stein et al (2001) reported nasal cavity squamous cell carcinoma in Wegener's Granulomatosis.

Histologically, these tumours are divided into Keratinizing and nonkeratinizing variants. The presence of intercellular bridges and keratinization are obvious in well differentiated neoplasm. These features are barely evident in the poorly differentiated carcinomas (Fu and Perzin, 1997).

The most commonly used system for histological grading is a modification of the original Broder's system, consisting of three grades based on the amount of keratin, the degree of nuclear atypia and the mitotic activity. On the basis of these features squamous cell carcinoma is divided into –

- Well differentiated

- Moderately differentiated
- Poorly differentiated

B. UNDIFFERENTIATED CARCINOMA

A highly anaplastic and aggressive carcinoma, most patients have bony, cranial and orbital involvement. The tumour cells appear undifferentiated and without keratinization.

C. ADENOCARCINOMA

Adenocarcinoma originate from salivary glands or from mucoid cells. Histologically most salivary gland tumors are adenoid cystic carcinomas or adenocarcinomas of no specific histologic type. The tumour exhibit no sex difference.

An increased incidence of adenocarcinoma of nasal cavity and paranasal sinuses have been found in wood and furniture workers (Fu and Perzin, 1997).

Abraham et al (1999) reported primary papillary adenocarcinoma of nose and paranasal sinuses in a 65 year old female who presented with a growth in nasal cavity.

Keenam and Elliott (1991) reported, adenocarcinoma with unusual presentation.

D. VERRUCOUS CARCINOMA

A warty variant of squamous cell carcinoma, characterized by a pronounced overgrowth of well differentiated keratinizing epithelium thrown up into regular vertical folds. The verrucous carcinoma is distinguished form well differentiated squamous cell carcinoma by

minimal atypia, its growth pattern and absence of metastasis Shanmugaratnam and Sobin (1978).

E. HEMANGIOPERICYTOMA

Occurs usually in older adults. Histologically tumour is characterized by the proliferations of round, oval or spindle shaped cells of rather uniform size surrounded by reticulin fibres and arranged about vascular spaces lined by a single layer of endothelial cells.

Mangwana et al (1996) reported hemangiopericytoma in a 28 year old female.

F. CHONDROSARCOMA

A malignant tumour characterized by the formation of cartilage, but not of bone, by the tumour cells.

Sudhanshu M Sethy (1999) reported 3 cases of chondrosarcoma nose and paransal sinuses.

G. TERATOCARCINOSARCOMA

Are rare malignant tumours which display combined features of an immature malignant teratoma and a carcinosarcoma.

Pai et al (1997) reported 3 cases of sino-nasal teratocarcinosarcoma. The patients (2 male, 1 female) were 33, 60 and 69 years old respectively.

Kailash and Panicker (1999) reported a case of teratocarcinosarcoma in a 46 yr old male.

H. PLASMACYTOMA

The upper respiratory tract is the most frequent site of extramedullary plasmacytoma, it arises most frequently in the mucous membrane of the

nasal cavity itself. Histologically, these neoplasms are composed of a pure population of plasma cells, usually growing in solid sheets. Most of the cells show atypical features.

Vasudev et al (1997), reported extramedullary nasal plasmacytoma in a 32 year old women. Purrott LH (1994), reported extramedullary plasmacytoma in a 52 year old white male.

I. LYMPHOMAS

Any of the types of malignant lymphoma may arise as a primary tumour in the upper respiratory tract.

They account for 10 percent of all malignant tumours of the nasal region. The disease shows male predominance and occurred over a wide age range, with a median of 52 years. Most nasal / nasopharyngeal lymphomas are peripheral T-cell neoplasms (Chan et al, 1987).

PATTERN OF SPREAD OF MALIGNANT NASAL TUMOURS

(Mendenhall et al, 2000)

1. **Malignant lesions of nasal vestibule (squamous cell carcinoma, basal cell carcinoma & adenexal carcinoma)** - invade alar and septal cartilages, skin of nose, upper lip, nasal cavity. Lymph node spread is usually to a solitary ipsilateral submaxillary note but may be bilateral.
2. **Lesions of nasal cavity-** those arising on the lateral wall invade axillary sinus, ethmoids and orbits.

Those arising in olfactory region invade ethmoids, orbits, anterior cranial fossa, frontal lobes. These lesions also destroy septum and may invade through nasal bone to skin.

In advanced lesions nasopharynx and sphenoid sinuses are involved.

Esthesio-neuroblastoma and minor salivary gland tumours have greater propensity for perineural spread.

3. Maxillary sinus tumours spread to the oral cavity, infratemporal fossa, nasal cavity, ethmoid and frontal sinuses, lacrimal apparatus and medial inferior orbit.
4. Ethmoid sinuses lesions spread to nasal cavity, medial orbit, maxillary antrum, nasopharynx, sphenoid sinus and anterior cranial fossa.
5. Sphenoidal sinus tumours spread to nasopharynx and nasal cavity.

TUMOUR STAGING (Ackerman's Pathology, 9th Ed, 2004)

The AJCC staging system for tumours of the nasal vestibule, nasal cavity and paranasal sinuses is as follows :

PRIMARY TUMOUR (T)

Nasal vestibule : The staging system for skin cancer is used.

MAXILLARY SINUS

Tx Primary tumour cannot be assessed.

T0 No evidence of primary tumour.

Tis Carcinoma in situ

T1 Tumour limited to the maxillary sinus mucosa with no erosion or destruction of bone.

T2 Tumour causing bone erosion or destruction including extension into the hard palate and/or middle nasal meatus, except extnesion to posterior wall of maxillary sinus and pterygoid plates.

T3 Tumour invades any of the following : bone of the posterior wall of maxillary sinus, subcutaneous tissues, floor of medial wall of orbit, pterygoid fossa, ethmoid sinuses.

T4a Tumour invades anterior orbital contents, skin of cheek, pterygoid plates, infratemporal fossa, cribriform plate, sphenoid or frontal sinuses.

T4b Tumour invades any of the following : orbital apex, dura, brain, middle cranial fossa, cranial nerves other than maxillary division of trigeminal nerve (vz), nasopharynx or clivus.

NASAL CAVITY AND ETHMOID SINUS

Tx Primary tumour cannot be assessed.

T0 No evidence of primary tumour

Tis Carcinoma in situ

T1 Tumour restricted to any one subsite, with or without bony invasion.

T2 Tumour invading two subsites in a single region or extending to involve an adjacent region within the nasoethmoidal complex, with or without bony invasion.

T3 Tumour extends to invade the medial wall or floor of the orbit, maxillary sinus, palate, or cribriform plate.

T4a Tumour invades any of the following : anterior orbital contents, skin of nose or cheek, minimal extension to anterior cranial fossa, pterygoid plates, sphenoid or frontal sinuses.

T4b Tumour invades any of the following : orbital apex, dura, brain, middle cranial fossa, cranial nerves other than V2, nasopharynx or clivus.

REGIONAL LYMPH NODES (N)

Nx Regional lymph nodes cannot be assessed.

N0 No regional lymph node metastasis.

N1 Metastasis in a single ipsilateral lymph node, 3cm or less in greatest dimension.

N2 Metastasis in a single ipsilateral lymph node, more than 3cm but not more than 6cm in greatest dimension or in multiple ipsilateral lymph nodes, none more than 6cm in greatest dimension, or in bilateral or contralateral lymph nodes, none more than 6cm in greatest dimension.

N2a Metastasis in a single ipsilateral lymph node, more than 3cm but not more than 6cm in greatest dimension.

N2b Metastasis in multiple ipsilateral lymph nodes, none more than 6cm in greatest dimension.

N2c Metastasis in bilateral or contralateral lymph nodes, none more than 6cm in greatest dimension.

N3 Metastasis in a lymph node, more than 6cm in greatest dimension.

DISTANT METASTASIS (M)

Mx Distant metastasis cannot be assessed.

M0 No distant metastasis.

M1 Distant metastasis.

DIAGNOSTIC METHODS FOR STUDY OF NASAL LESIONS AND TUMOURS

1. ANTERIOR RHINOSCOPY

This procedure is carried out using a head mirror and a light source. Examination of nasal vestibule by raising the tip of nose for redness and swelling (eg. furunculosis).

An assessment of nasal airway is done by keeping a cold glass slide or a metallic tongue depressor just in front of nostrils. The difference on the two sides is an indication of nasal obstruction.

A) EXAMINATION WITH A NASAL SPECULUM

A Thudicum's speculum or a St. clair. Thompson's speculum with a handle are commonly used for examination. The nasal cavities (floor, lateralwall, septum and posterior portions) are properly examined. Colour and congestion of nasal mucosa if any variation from normal are observed. Septal deviation, spurs, prominent vessels or crusting in little's area, perforation of septum are noted.

The anterior ends of inferior and middle turbinates are visible on anterior rhinoscopy. Any atrophy (e.g. atrophic rhinitis) or hypertrophy (Chronic rhinitis, vasomotor rhinitis or allergic rhinitis) of turbinates is noted.

The meati are mostly covered by the turbinates and hardly visible on anterior rhinoscopy. The meati are noted for discharge, local edema or redness.

B) POSTURAL TEST

Is done to check the group of sinus involvements (anterior or posterior).

C) EXAMINATION OF ORAL CAVITY AND OROPHARYNX

On examination of the oral cavity in relation to nasal and paranasal sinus disease, it is important to note following –

- Gingivobuccal sulcus for any fullness or discharge
- Carious teeth, loose teeth
- Widening of alveolus
- Oroantral fistula
- Bulging of soft palate because of mass in nasopharynx

2) POSTERIOR RHINOSCOPY

This procedure permits the examination of the posterior aspects of nose and nasopharynx. The posterior end of septum is seen as a vertical edge. On each side of posterior end of septum are seen posterior choane. The posterior edges of the inferior, middle and superior turbinates are seen on the lateral side of nasal cavity.

Discharge from the maxillary sinus, posterior ethmoidal sinuses and sphenoid sinuses can be seen by posterior rhinoscopy.

Antrochoanal polyp, nasopharyngeal angiofibroma or nasopharyngeal cancer if present can also be noted by posterior rhinoscopy.

3. RHINOMANOMETRY

Is done for measurement of nasal air flow in studying nasal obstruction.

4. NASOPHARYNGOSCOPY

Is useful for evaluating cases of suspected cancer. The nasopharyngoscope is passed along the inferior turbinate and examination of nasopharynx done through its window.

5. PLAIN X-RAYS

It is difficult to examine the nasal cavity and all paranasal sinuses on one projection, so the examination of individual sinus requires many views. The few standard views that are taken are as follows –

a) ***Occipitomental view (waters view)*** – Demonstrate mainly maxillary sinuses, nasal cavity, septum, frontal sinuses.

b) ***Occipitofrontal view (Caldwell view)*** – Visualizes frontal sinuses, maxillary antrum and nasal cavity.

c) ***Submentovertical view*** – This view is useful for demonstrating sphenoid sinuses, ethmoids, nasopharynx, petrous apex, post wall of maxillary sinus.

d) ***Lateral view*** – The maxillary, ethmoidal and frontal sinuses superimpose each other but this film is useful for demonstrating the adenoid mass or tumour in the nasopharynx.

6) COMPUTED ANGIOGRAPHY (CT)

CT is currently the modality of choice in the evaluation of paranasal sinuses and adjacent structures. Its ability to optimally display bone, soft tissue and air facilitates accurate depiction of anatomy and extent of

disease in and around paranasal sinuses. In contrast to standard radiography, CT can clearly show the fine bony anatomy of the osteomeatal channels.

7) MAGNETIC RESONANCE

Although magnetic resonance imaging better visualizes soft tissue than CT it does not visualize cortical bone.

8) BIOPSY

The lesions present at surface that is easily approachable, biopsy is performed directly under local anaesthesia and infiltration by epinephrine.

Lesions present in sinuses should be biopsied transnasally. The material obtained were subjected for histological and immunohistochemical study.

9) ASPIRATION CYTOLOGY

Is recommended for deep tumours of antrum. Rostkowska et al (2005) studied cytological examination of nasal polyps smears.

10) ANGIOGRAPHY

The external carotid angiography may be helpful in nasopharyngeal angiofibroma and other vascular lesions of the nose and paranasal sinuses.

Petruson et al (1988) reported insulin like growth factor –I immunoreactivity in nasal polyps.

Leprini et al (1993) reported immunohistochemical study of nasal mucosa of patients with fibrous polyps.

Coste et al (1996) studied nasal polyposis pathogenesis by immunohistochemical study of epithelial cell proliferation.

TREATMENT

Nasal vestibule : Both surgery and radiation therapy produce a high degree of success. Radiation therapy is usually the preferred treatment because of the deformity produced by excision. Excision is preferred for very small lesions, the removal of which will not produce cosmetic deformity or require reconstruction.

NASAL CAVITY

Selection of treatment modality – The histology, extent and location of the malignant tumour in the nasal cavity are all considered when treatment decisions are made.

Inverting papilloma is treated initially by surgical excision.

Irradiation is recommended for lesions that are incompletely resected, for patients with multiple recurrences and for those in which carcinoma is found in the specimen.

Squamous cell carcinoma and adenocarcinoma of the nasal cavity can be treated with surgery, irradiation or both.

Surgical treatment – Lateral rhinotomy provides the best access for resection of lesions of the nasal cavity. The lateral wall of the nose may be removed by this approach for resection of inverting papilloma and other localized neoplasms. More advanced lesions require removal of involved sinuses and orbit. A craniofacial procedure may be required.

Irradiation technique – The external-beam irradiation technique emphasizes an anterior portal with one or two lateral portals. Contiguous structures such as maxillary sinus, ethmoid sinus, medial orbit, nasopharynx, base of the skull, and sphenoid sinus are generally included in the initial treatment volume as required. The treatment volume is reduced after 50 Gy to include the original gross disease with a margin. Advanced lesions may require inclusion of an entire orbit.

Combined treatment policies – If combined treatment is planned, perform the operation first to avoid obscuring the extent of tumor. Irradiation is started 4 to 6 weeks after ward. The dose is usually 60Gy in 6 weeks to 65 Gy in 7 weeks for clear margins.

MAXILLARY SINUS

Surgical resection gives the best results. Early infrastructure lesions may be excised and cured by surgery alone, but for most other cases, irradiation is given postoperatively even if margin are negative. Extension of cancer to the base of the skull, nasopharynx or sphenoid sinus contraindicates surgical excision.

ETHMOID SINUS

Ethmoid sinus lesions are usually extensive when first diagnosed. Radiation therapy alone produces better results than surgery alone and is the preferred single treatment.

SPHENOID SINUS

The treatment of sphenoid sinus lesions is with radiation therapy.

Material & Methods

Material & Methods

For present study cases shall be taken from the patients attending Ear, Nose and Throat OPD and also from the in-patients admitted in ENT/Surgical wards of MLB Medical College Hospitals, Jhansi, U.P. and all the cases of nasal masses from the old records of the histopathology section of the department of pathology, MLB medical College Hospitals, Jhansi, U.P. Shall be collected and analysed.

1) Material in the form of Biopsies shall be obtained from patients in the form of incisional biopsy.
2) Biopsies shall be preserved in 10% formal saline solution.
3) Biopsies thus procured shall be subjected to following –
    a. Tissue blocks shall be prepared by paraffin embedding technique.
    b. Section shall be cut on microtome at 4-6 μm thickness.
    c. The section thus prepared shall be subjected to following staining procedure.
        i. Routine haematoxylin and eosin staining (Clayden, 1971).
        ii. Special staining methods – following special staining methods shall be applied wherever found suitable –
            1. Reticulin (Gorden and Sweet) stain
            2. Periodic –acid Schiff's stain
            3. Mucicarmine stain
            4. Grams staining (to demonstrate bacteria)

FOR H&E STAINING FOLLOWING METHOD WAS USED (CLAYDEN – 1971)

METHOD

- Sections of 4μ thickness were cut and gently lowered on the surface of water bath having a temperature 5-10°C lower than the melting point of wax.
- These sections were taken on egg albumin smeared slides.
- These slides were warmed on hot plate at a temperature so that wax just melts. The removal of wax then done in xylene.
- The xylene was washed by 95% alcohol. The sections were then brought to water by washing in descending order of alcohol i.e. 90%, 70% and then in deionised water.
- Section is then stained with hematoxylin for 10 to 20 minutes.
- Tip off stain and wash thoroughly with water.
- Differentiate with 1% acid alcohol for 10-20 secs.
- Wash of acid alcohol with tap water.
- Blue in warm tap water for atleast 55 mins.
- Counterstain with 1% aqueous eosin for 1-5 minutes.
- Wash in tap water. The length of time depends on the amount of eosin that is desired to be left in the section.
- Wash in 95% alcohol for few seconds. Dehydrate with absolute alcohol for few seconds.
- Clear by washing with xylene.
- Mount in DPX.

RESULT –

Cell nuclei stained blue

Cytoplasm stained eosinophilic

Muscle fibres are stained red

Collagen fibres are stained pink

Red blood cells are stained bright red.

GORDEN AND SWEETS METHOD FOR RETICULIN (CLAYDEN – 1971)

METHOD

- Prepare paraffin wax sections.
- Bring sections down to distilled water.
- Oxidize in acidified permanganate solution for 1 to 5 minutes.
- Wash in distilled water for 0.5 to 1 mins.
- Bleach until white in 1% oxalic acid usually a few secs.
- Wash in tap water for 1 to 5 minutes.
- Wash in two changes of distilled water each for 1 min.
- Mordant in 2.5% iron alum for a minimum of 15 minutes but not longer than 2 hrs.
- Wash in 2-3 changes of distilled water.
- Impregnate with diamino silver solution by flooding the slide for 10-40 minutes.
- Rinse in distilled water.
- Reduce in 10% formalin for 1 min.
- Wash in water.
- Tone if desired in 0.2% gold chloride for 0.5 to 2 mins.

- Wash in tap water.
- Place in 5% sodium thiosulphate solution for 5 mins.
- Wash thoroughly with tap water.
- Dehydrate with absolute alcohol.
- Clear with xylene.
- Mount in DPX.

RESULTS

Reticulin fibres are stained brownish black in untoned and dark purple in toned preparation.

FOR PERIODIC ACID –SCHIFF'S STAINING (CLAYDEN – 1971)

METHOD

- Prepare paraffin wax sections
- Bring section in 70% alcohol for 10 minutes.
- Treat with alcoholic periodic acid solution for 5-10 minutes.
- Rinse in 70% alcohol for 1 minute.
- Treat with acid reducing rinse for 1 minute.
- Rinse in 70% alcohol.
- Treat with Schiff's reagent for 10-30 minutes.
- Wash in running tap water for 10 minutes.
- Place in celestine blue for 3 minutes.
- Bring section in Mayer's hemalum for 5 minutes.
- Differentiate in 1% acid alcohol for 10-20 seconds.
- Wash in running water till blue.
- Counter stain with orange G for 10 seconds.

- Wash in water for 20 to 30 seconds.
- Dehydrate with absolute alcohol.
- Clear with xylene
- Mount in DPX.

RESULT

Rose to pink – is acid mucopolysaccharide, glycogen, mucin, colloid droplets, hyaline deposits of glomeruli, epithelial mucin, basement membrane, colloid of thyroid, amyloid and fungi.

FOR SOUTHGATES MUCICARMINE STAINING FOLLOWING METHOD WAS USED (CLAYDEN – 1971)

METHOD

- Prepare paraffin wax sections.
- Bring section to distilled water.
- Stain in Weigert's iron haematoxyline stain for 5 minutes.
- Differentiate in acid alcohol and blue in tap water.
- Stain for 30 minutes in the staining solution (mucicarmine solution) diluted to four times with distilled water.
- Wash in tap water.
- Dehydrate with absolute alcohol.
- Clear with xylene.
- Mount in DPX.

RESULT

Mucin : Reddish

Nuclei : Blue

FOR GRAM'S STAINING FOLLOWING METHOD WAS USED (CLAYDEN – 1971)

METHOD

- Prepare paraffin wax sections
- Bring section down to water.
- Stain for 1 minute in gram's crystal violet (0.5% solution in distilled water).
- Rinse in water
- Mordant in Lugol's iodine for ½ minute.
- Rinse
- Differentiate in acetone till no more clouds of stain come out (about 3 seconds).
- Rinse in water.
- Counterstain in neutral red fuchsin.
- Dehydrate quickly in alcohol.
- Clear with xylene.
- Mount in DPX.

RESULT

Gram positive organism - Blue Black

Other tissue structures - Shades of Red

WORKING PROFORMA

TITLE OF THESIS : "Histopathological study of tumour and tumour like nasal masses - A prospective and retrospective study".

CLINICAL DATA

Patient's Name	:		MRD No.	:
Age/ Sex	:	Male/ Female	Date	:
Address	:		Ward/Bed	:
Religion	:	Hindu/ Muslim/Others		
Occupation	:			

Clinician I/C

Clinical diagnosis

Chief/ Presenting complaints : (a) Nasal Blocked
(b) Nasal mass
(c) Bleeding
(d) Any other

Clinical findings :

P/NS :

PATHOLOGICAL DATA

1. Gross Examination : HP No. .....
2. Histopathological findings and Diagnosis (H & E) :
3. Special staining procedures if any :
   a. PAS :
   b. Reticulin :
   c. Mucicarmine :
   d. Gram's staining :
4. Clinico-Pathological Correlation :
5. Pathological Diagnosis :
6. Remarks :

Observations

CHART - 1

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Observations

The present study was conducted in the Department of Pathology, M.L.B. Medical College, Jhansi. Study consisted of biopsy specimens obtained from patients attending ear, Nose and Throat OPD and also from in patients admitted in ENT/Surgical wards of MLB Medical College & Hospital, Jhansi, during the year 2000-2006. This study also included cases from old records available in the Department of Pathology from year 2000-2006.

A total of 67 cases were studied and analyzed.

The following observations were made :-

TABLE -1

Region-wise distribution of cases (67 cases)

S. No.	Region	No. of cases	Percentage %
1.	Urban	38	56.7
2.	Rural	29	43.3

Table –1 shows region-wise distribution of cases studied. 38 cases (56.7%) belonged to Urban areas whereas 29 cases (43.3%) belonged to Rural areas.

CHART - 2

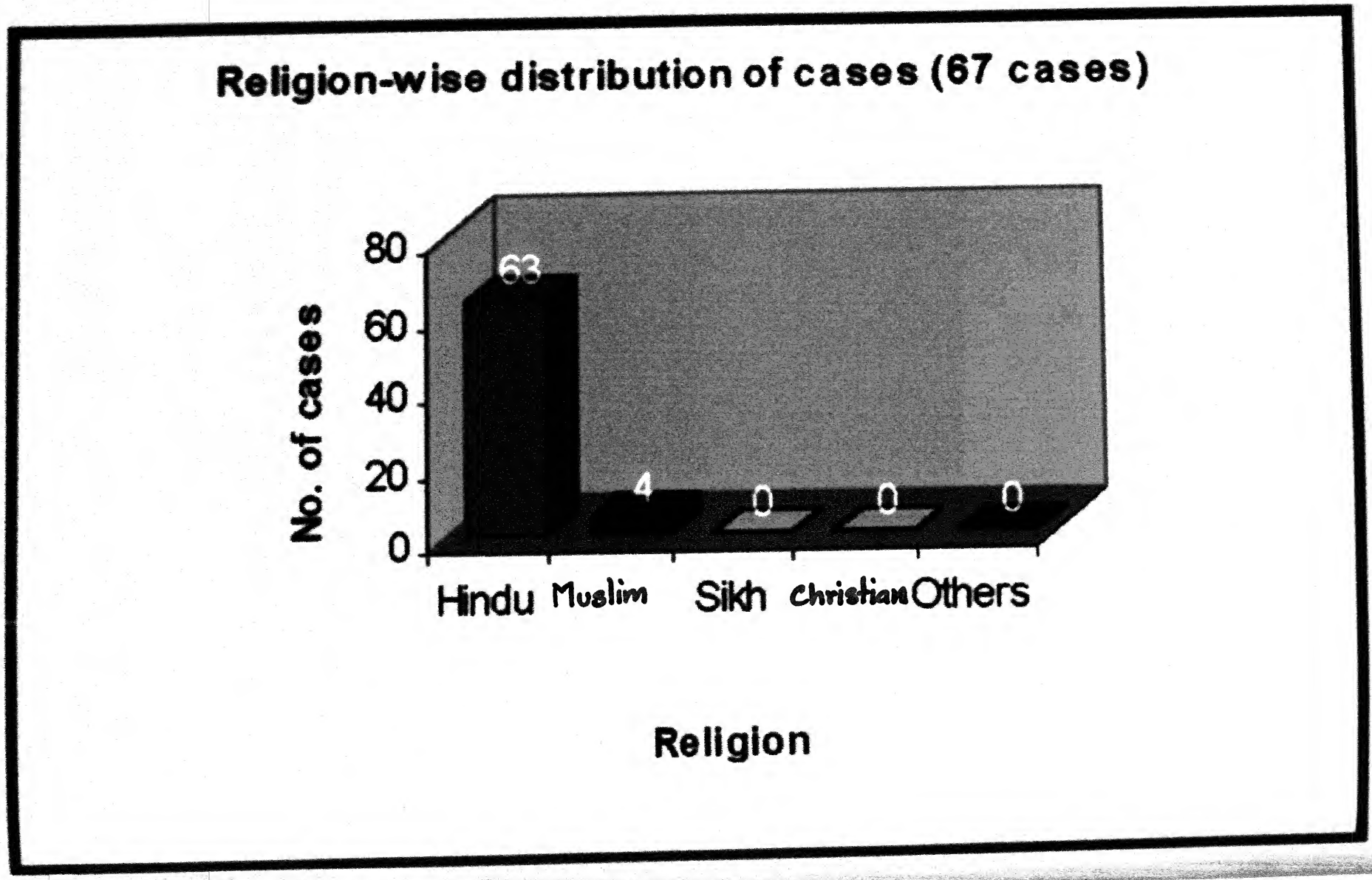

Religion-wise distribution of cases (67 cases)
No. of cases
80
60
40
20
0
63
4
0
0
0
Hindu
Muslim
Sikh
Christian
Others
Religion

CHART - 3

TABLE -2

Religion-wise distribution of cases (67 cases)

S. No.	Religion	No. of cases	Percentage %
1.	Hindu	63	94.1
2.	Muslim	04	5.9
3.	Sikh	-	-
4.	Christian	-	-
5.	Others	-	-

As is evident form the above table –2, 63 cases (94.1%) were Hindu, whereas 4 cases (5.9%) belonged to Muslim community.

TABLE -3

Sex-wise distribution of cases (67 cases)

S. No.	Sex	No. of cases	Percentage %
1	Male	40	59.7
2	Female	27	40.3

Table –3 shows sex-wise distribution of cases. There were 40 males (59.7%) and 27 females (40.3%).

CHART - 4

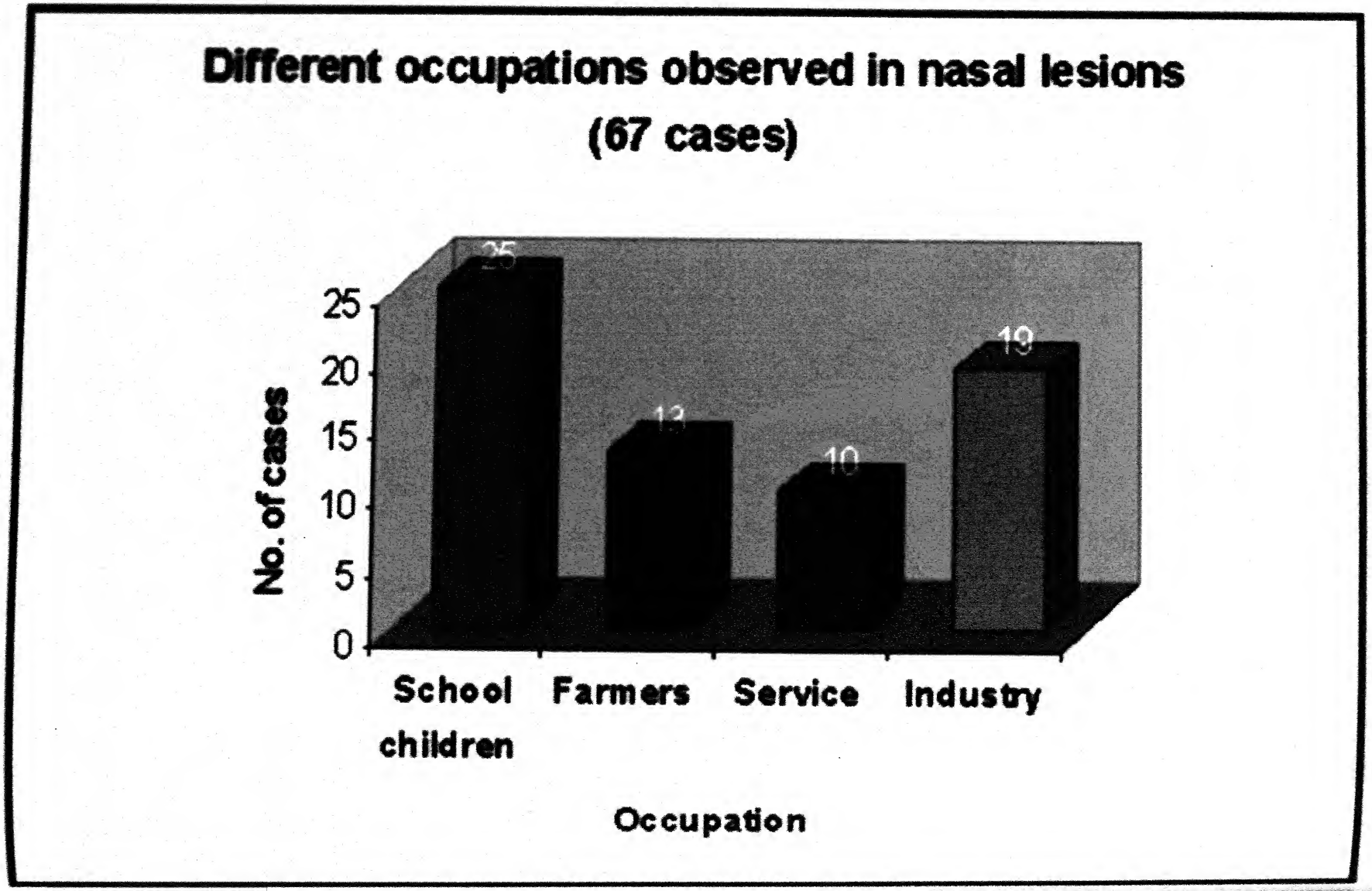

Different occupations observed in nasal lesions
(67 cases)
No. of cases
25
20
15
10
5
0
25
13
10
19
School children
Farmers
Service
Industry
Occupation

TABLE -4

Different occupations observed in nasal lesions (67 cases)

S. No.	Occupations	No. of cases	Percentage %
1.	School children	25	37.3
2.	Farmers	13	19.4
3.	Service	10	14.9
4.	Industry (Chemical, rubber, paint, wood, cement, textile, chalk, glass, leather)	19	28.4

Table - 4, shows distribution of nasal lesions according to occupation. Maximum number of cases 25 (37.3%) were observed in school children, followed by 19 cases (28.4%) in industrial workers and 13 cases (19.4%) in farmers while 10 cases (14.9%) were observed in serviceman.

CHART - 5

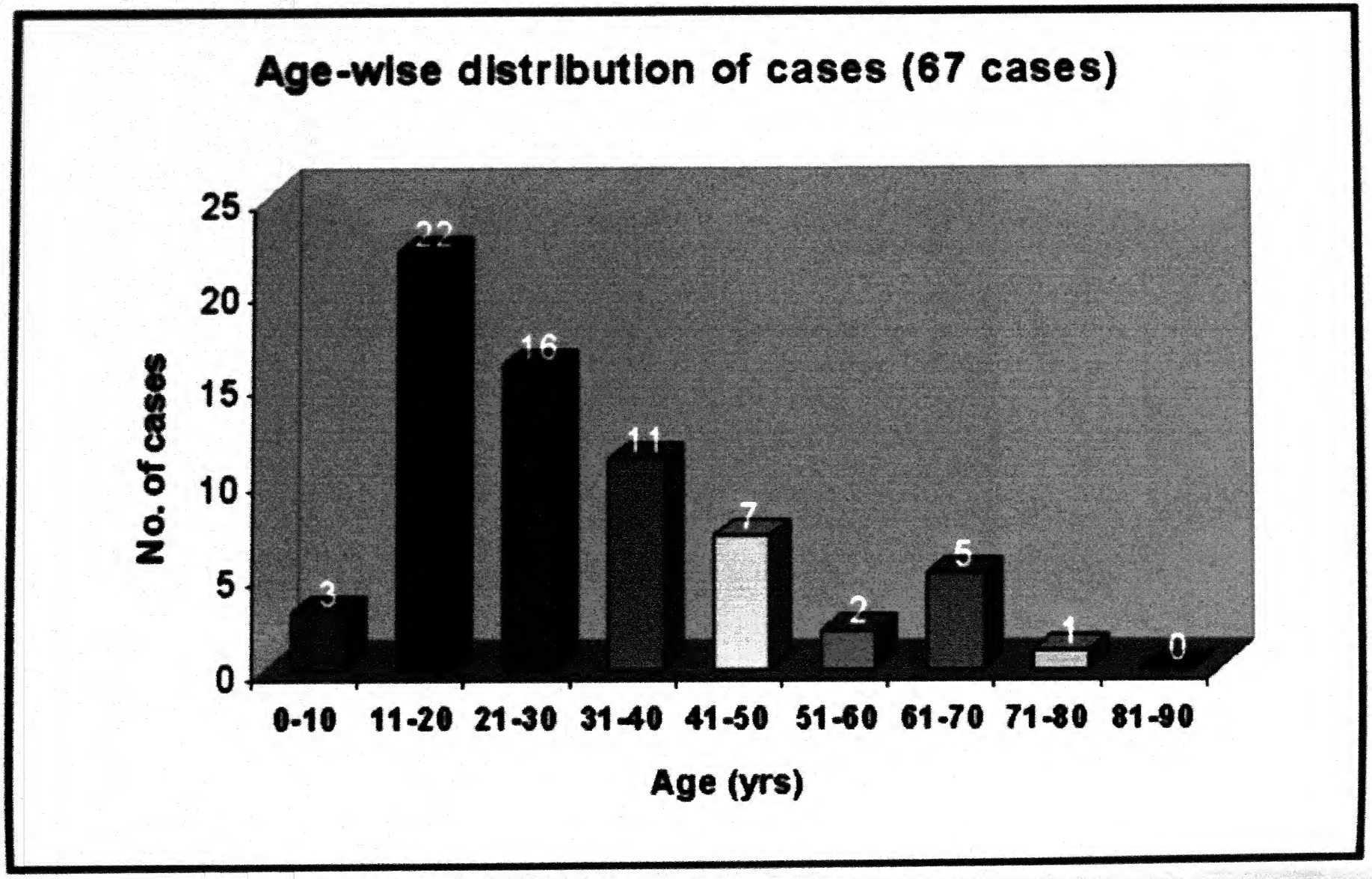


Table –5 sh
cases (32.8
(23.8%) in
7 cases (1
belonged t
range, 2 c
cases (1.6

S.No.	Age
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

TABLE -5

Age-wise distribution of cases (67 cases)

S. No.	Age (yrs)	No. of cases	Percentage %
1.	0-10	03	4.7
2.	11-20	22	32.8
3.	21-30	16	23.8
4.	31-40	11	16.4
5.	41-50	07	10.4
6.	51-60	02	2.9
7.	61-70	05	7.4
8.	71-80	01	1.6
9.	81-90	-	-

Table –5 shows age-wise distribution of cases. Maximum number of 22 cases (32.8%) were in age range of 11-20 yrs followed by 16 cases (23.8%) in 21-30 yrs age range, 11 cases (16.4%) in 31-40 yrs age range. 7 cases (10.4%) belonged to 41-50 yrs age range, 5 cases (7.4%) belonged to age range 61-70 yrs, 3 cases (4.7%) belonged to 0-10 yrs age range, 2 cases (2.9%) belonged to 51-60 yrs age range, whereas only 1 cases (1.6%) belonged to 71-80 yrs of age range.

CHART - 6

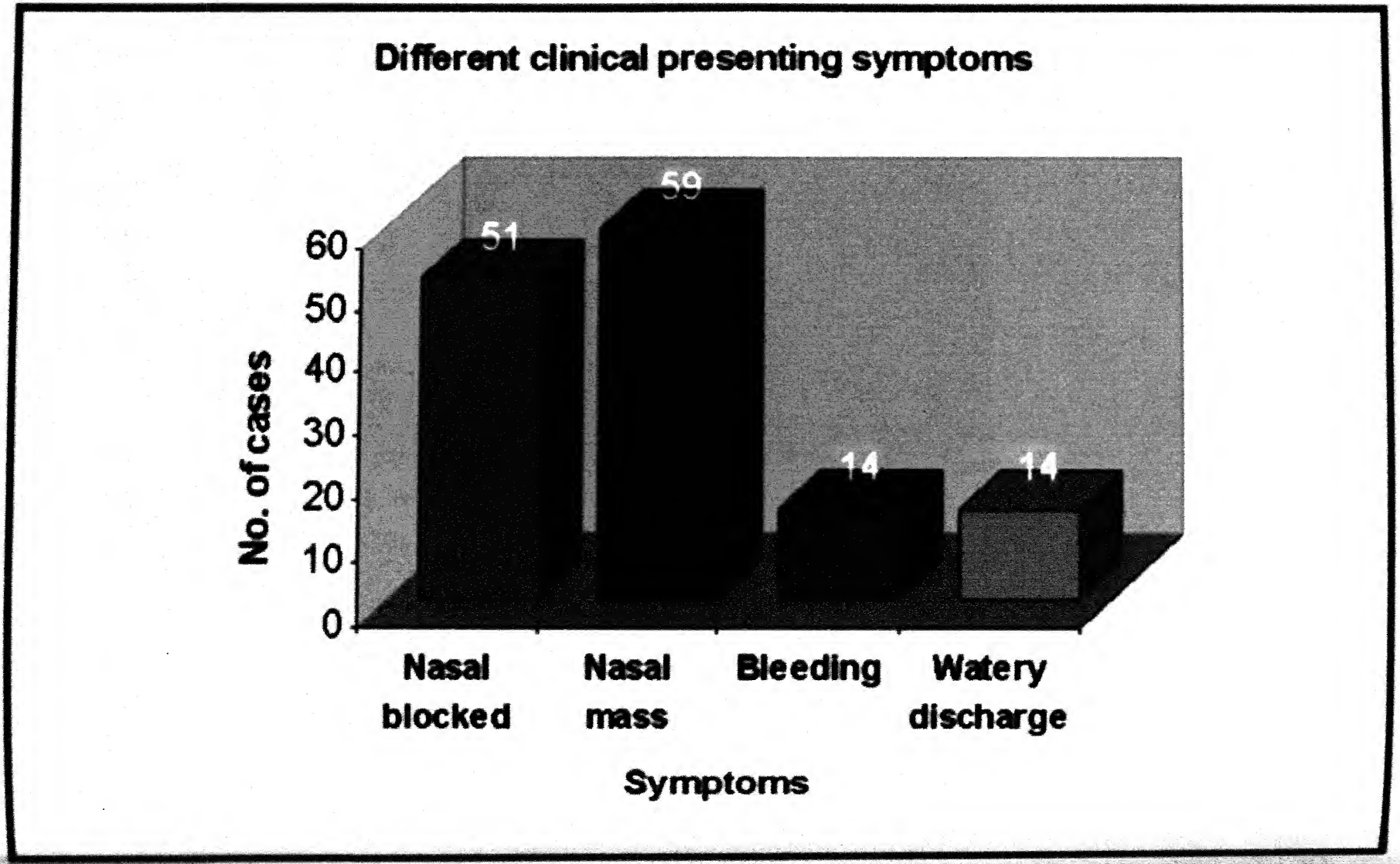

Different clinical presenting symptoms
No. of cases
60
50
40
30
20
10
0
51
59
14
14
Nasal blocked
Nasal mass
Bleeding
Watery discharge
Symptoms

TABLE -6

Different clinical presenting symptoms

S. No.	Presenting symptoms	No. of cases	Percentage %
1.	Nasal blocked	51	76.0
2.	Nasal mass	59	88.0
3.	Bleeding (Epistaxis)	14	20.0
4.	Watery nasal discharge (Rhinorrhea & Sneezing)	14	20.0

Table –6 shows different clinical presenting symptoms as observed in the present study. The most common presenting symptoms was as Nasal mass in 59 cases (88.0%) followed by Nasal blocked in 51 cases (76.0%). Bleeding (Epistaxis) was observed in 14 cases (20.0%) and watery nasal discharge (Rhinorrhea associated with sneezing) was observed in 14 cases (20.0%)

CHART - 7

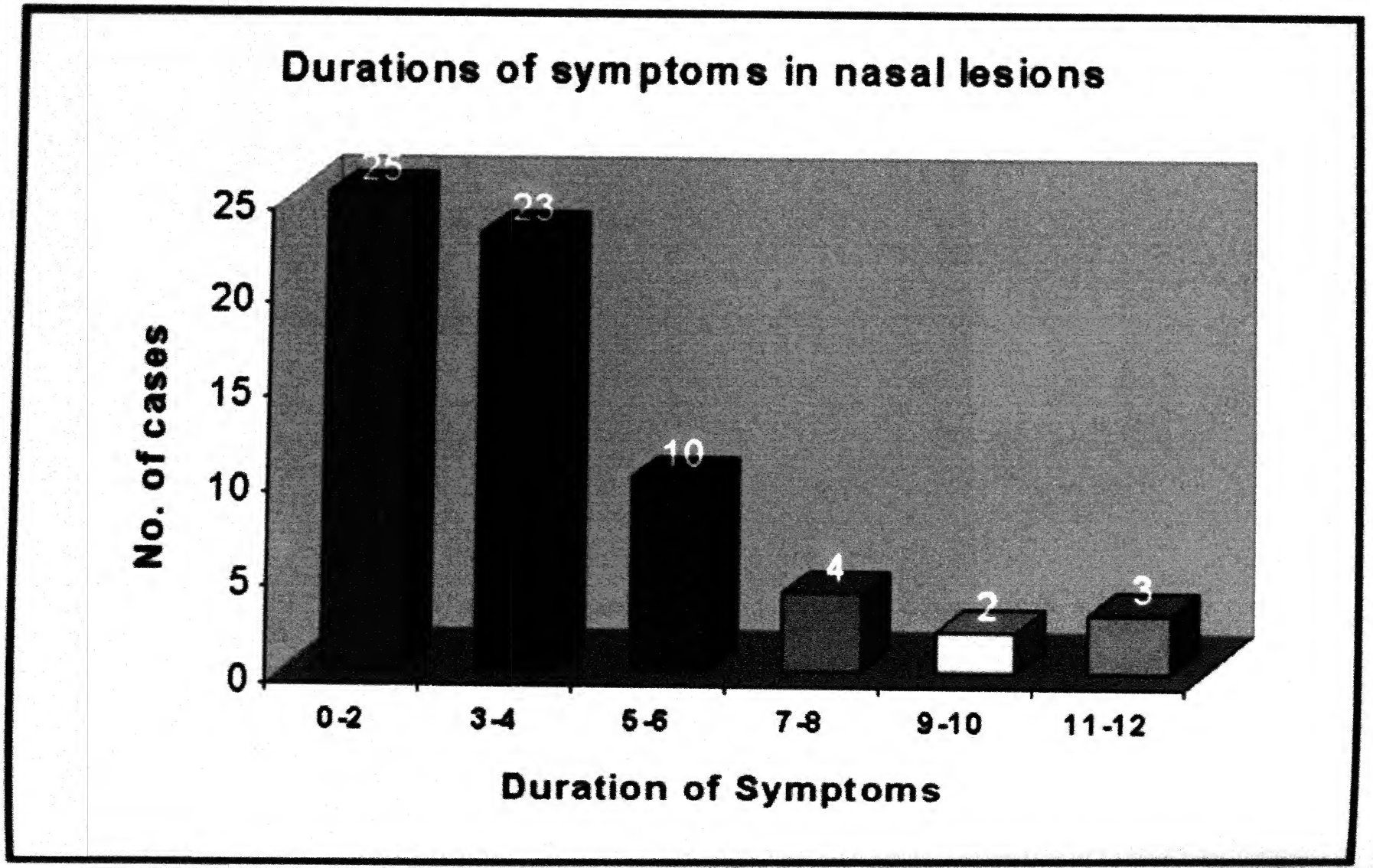

Durations of symptoms in nasal lesions
No. of cases
25
20
15
10
5
0
25
23
10
4
2
3
0-2
3-4
5-6
7-8
9-10
11-12
Duration of Symptoms

TABLE -7

Durations of symptoms in nasal lesions

S. No.	Duration of symptoms (yrs)	No. of cases	Percentage %
1.	0-2	25	37.3
2.	3-4	23	34.3
3.	5-6	10	15.0
4.	7-8	4	6.0
5.	9-10	2	3.0
6.	11-12	3	4.4

Table –7 shows duration of symptoms in nasal lesions. Maximum number of 25 cases (37.3%) were observed in 0-2 years duration followed by 23 cases (34.3%) in 3-4 yrs duration, 10 cases (15.0%) in 5-6 yrs duration. 4 cases (6.0%) observed in 7-8 yrs duration, 3 cases (4.4%) in 11-12 yrs duration and 2 cases (3.0%) in 9-10 yrs duration.

CHART - 8

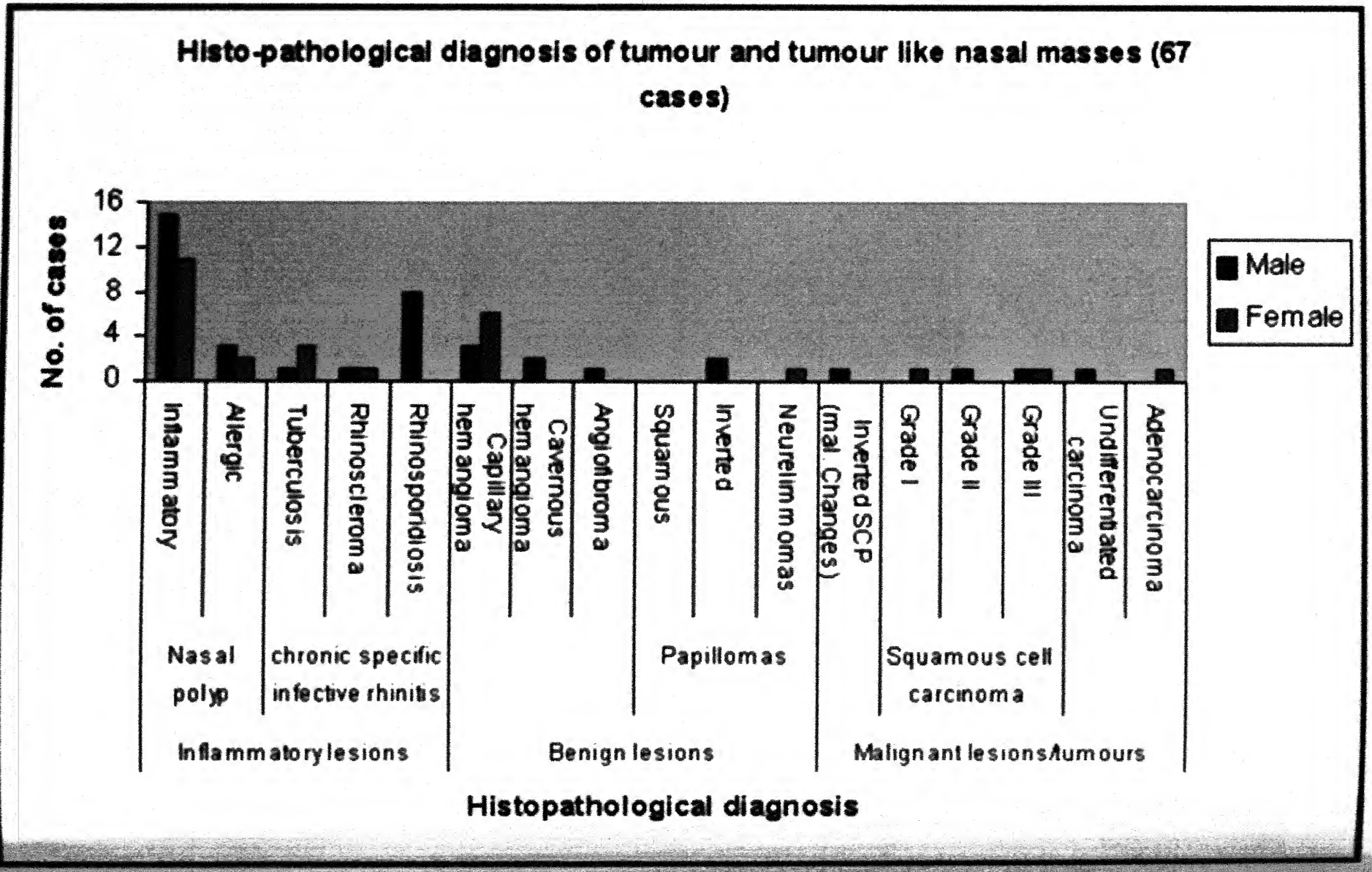

Histo-pathological diagnosis of tumour and tumour like nasal masses (67 cases)
No. of cases
16
12
8
4
0
Male
Female
Inflammatory
Allergic
Tuberculosis
Rhinoscleroma
Rhinosporidiosis
Capillary hemangioma
Cavernous hemangioma
Angiofibroma
Squamous
Inverted
Neurelimmomas
Inverted SCP (mal. Changes)
Grade I
Grade II
Grade III
Undifferentiated carcinoma
Adenocarcinoma
Nasal polyp
chronic specific infective rhinitis
Papillomas
Squamous cell carcinoma
Inflammatory lesions
Benign lesions
Malignant lesions/tumours
Histopathological diagnosis

TABLE -8

Histo-pathological diagnosis of tumour and tumour like nasal masses (67 cases)

S. No.	Histo-pathological diagnosis	No. of cases	Sex		Percent-age
			Male	Female	
I	***Inflammatory lesions***	***45***			***67.1***
1.	Nasal Polyps				
	- Inflammatory	26	15	11	38.9
	- Allergic	5	3	2	7.4
2.	Chronic specific infective rhinitis				
	- Tuberculosis	04	1	3	5.9
	- Rhinoscleroma	02	1	1	2.9
	- Rhinosporidiosis	08	8	0	12.0
II	***Benign lesions/ Tumour***	***15***			***22.5***
1.	Hemangioma				
	- Capillary	09	3	6	13.7
	- Cavernous	02	2	0	2.9
2.	Angiofibroma	01	1	0	1.5
3.	Papillomas				
	- Squamous	-	-	-	-
	- Inverted	02	2	0	2.9
4.	Neurilemmoma	01	0	1	1.5
III	***Malignant lesions/Tumor***	***7***			***10.4***
1.	Inverted squamous cell papilloma with early malignant changes	01	1	0	1.5
2.	Squamous cell carcinoma				
	- Grade I	01	0	1	1.5
	- Grade II	01	1	0	1.5
	- Grade III	02	1	1	2.9
3.	Undifferentiated carcinoma	01	1	0	1.5
4.	Adeno-carcinoma	01	0	1	1.5

CHART - 9

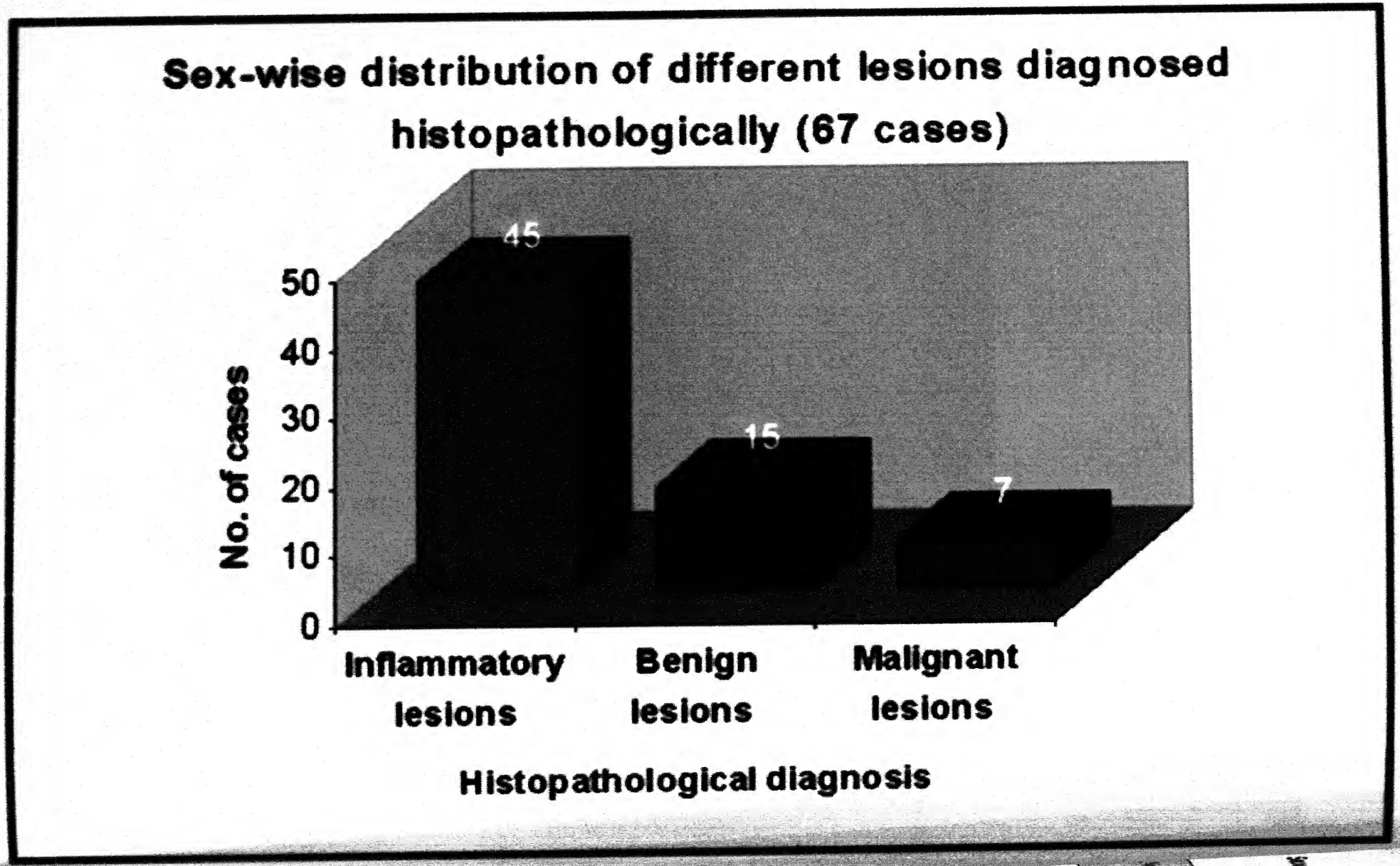

Sex-wise distribution of different lesions diagnosed histopathologically (67 cases)
No. of cases
0
10
20
30
40
50
45
15
7
Inflammatory lesions
Benign lesions
Malignant lesions
Histopathological diagnosis

TABLE -9

Sex-wise distribution of different lesions diagnosed histopathologically (67 cases)

S. No.	Histopathological diagnosis	No. of cases	Sex	
			Male	Female
1.	Inflammatory lesions	45	28 (62.3)	17 (37.7)
2.	Benign lesions	15	8 (53.4)	7 (46.6)
3.	Malignant lesions	7	4 (57.1)	3 (42.9)

(%) Percentage in paranthesis

Table –9 shows sex-wise distribution of cases as diagnosed histopathologically. Out of 45 cases of inflammatory lesions 28 (62.3%) were males and 17 (37.7%) were females. Among 15 cases of benign lesions/ tumours, there were 8 (53.4%) male and 7 (46.6%) females. Out of 7 malignant lesions/ tumors, 4 (57.1%) cases were male whereas 3 (42.9%) cases were females.

CHART - 10

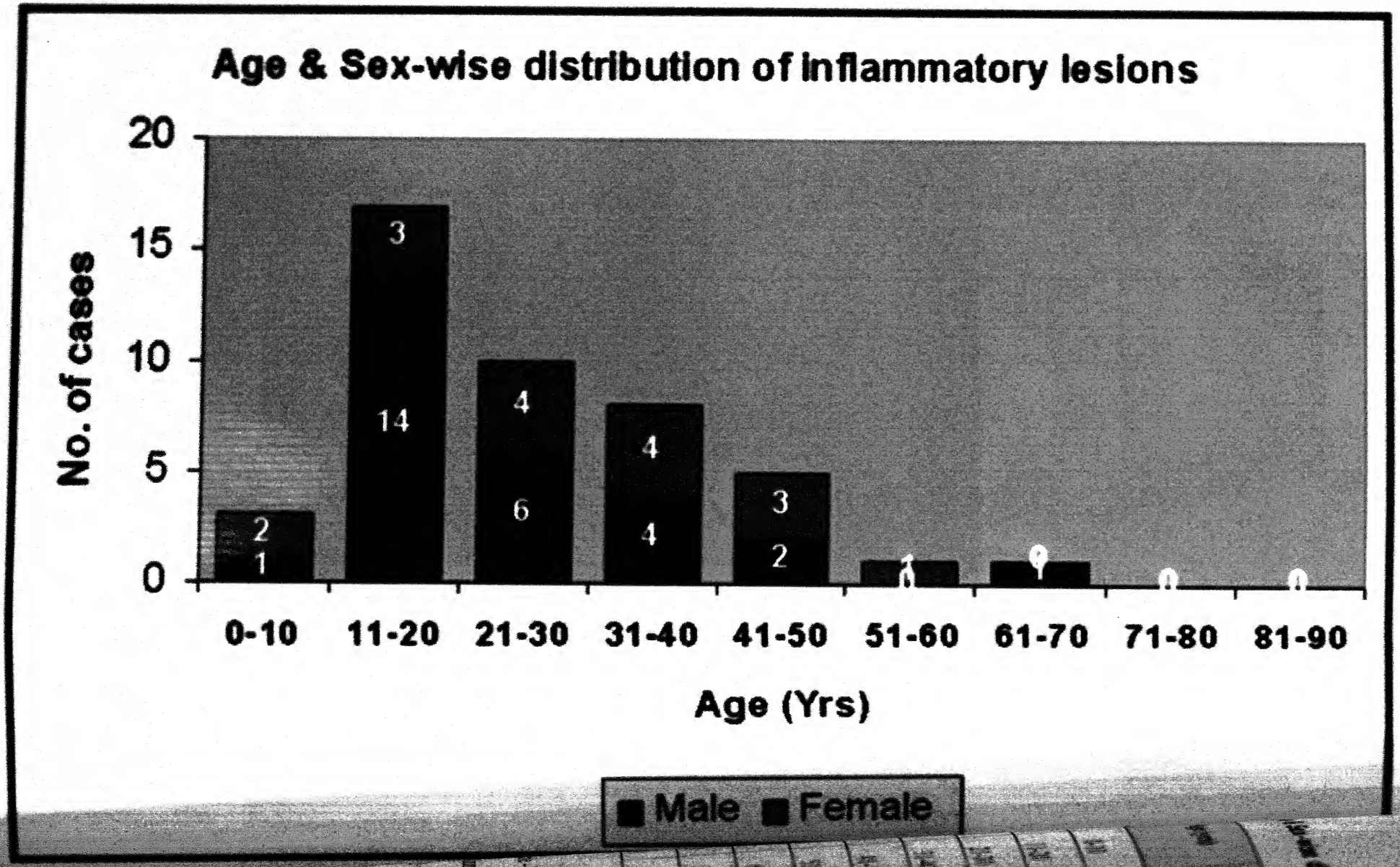

Age & Sex-wise distribution of inflammatory lesions
No. of cases
20
15
10
5
0
3
14
4
6
4
4
3
2
2
1
0-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
Age (Yrs)
Male
Female

TABLE -10

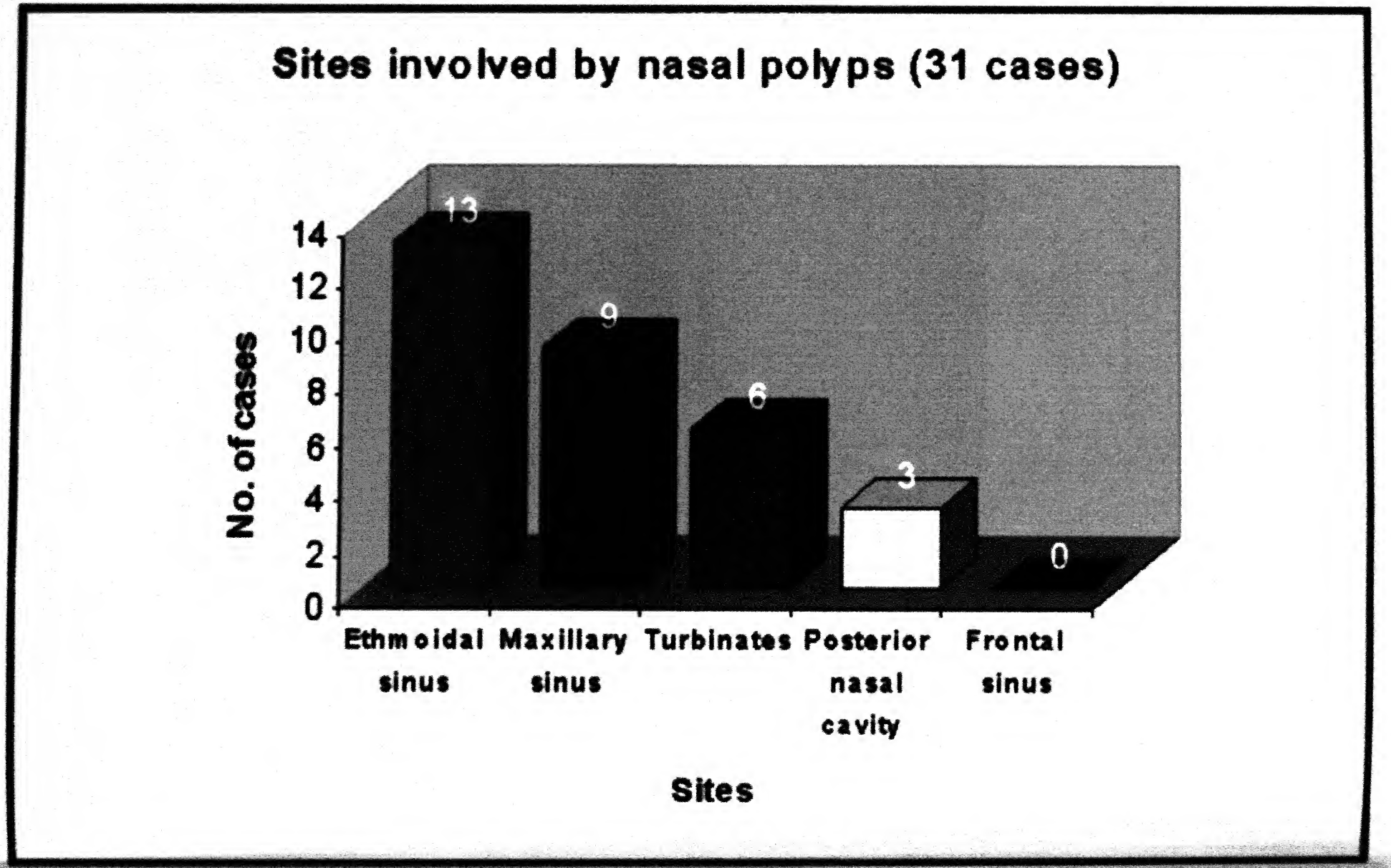
Age & Sex-wise distribution of inflammatory lesions

S. No.	Age (yrs)	No. of cases (45)	Sex	
			Male	Female
1.	0-10	3 (6.7)	1 (2.2)	2 (4.5)
2.	11-20	17 (37.8)	14 (31.2)	3 (6.6)
3.	21-30	10 (22.2)	6 (13.3)	4 (8.9)
4.	31-40	8 (17.8)	4 (8.9)	4 (8.9)
5.	41-50	5 (11.1)	2 (4.5)	3 (6.6)
6.	51-60	1 (2.2)	- (0.0)	1 (2.2)
7.	61-70	1 (2.2)	1 (2.2)	- (0.0)
8.	71-80	- (0.0)	- (0.0)	- (0.0)
9.	81-90	- (0.0)	- (0.0)	- (0.0)

(%) Percentage in paranthesis

Table –10 shows age and sex-wise distribution of inflammatory lesions. Maximum number of 17 cases (37.8%) were observed in age range of 11-20 yrs out of which 14 (31.2%) were male and 3 (6.6%) were female followed by 10 cases (22.2%) in 21-30 yrs range, out of which 6(13.3%) were male and 4 (8.9%) were female. 8 cases (17.8%) belonged to 31-40 yrs age range, out of which 4 (8.9%) were male and 4 (8.9%) were female. 5 cases (11.1%) belonged to 41-50 yrs age range, out of which 2 (4.5%) were male and 3 (6.6%) were female. In 0-10 yrs of age range out of 3 cases (6.7%), 2 (4.5%) were females and 1 male (2.2%). There were only 1 cases (2.2%) was observed in the age range 51-60 and 61-70. In

CHART - 11


Sites involved by nasal polyps (31 cases)
No. of cases
14
12
10
8
6
4
2
0
13
9
6
3
0
Ethmoidal sinus
Maxillary sinus
Turbinates
Posterior nasal cavity
Frontal sinus
Sites

51-60 yrs age range there is only one female (2.2%) whereas single case observed in 61-70 yrs age range was male (2.2%).

TABLE -11

Sites involved by nasal polyps (31 cases)

S. No.	Sites	No. of cases	Percentage %
1.	Ethmoidal sinus	13	42.0
2.	Maxillary sinus	9	29.0
3.	Turbinates (superior & middle)	6	19.3
4.	Posterior nasal cavity	3	9.7
5.	Frontal sinus	-	-

Table –11 shows origin of nasal polyps from different sites. 13 cases (42.0%) from ethmoidal sinus, 9 cases (29.0%) from maxillary sinus and turbinate involvement was observed in 6 cases (19.3%) where as posterior nasal cavity was the site of involvement in 3 cases (9.7%).

CHART - 12

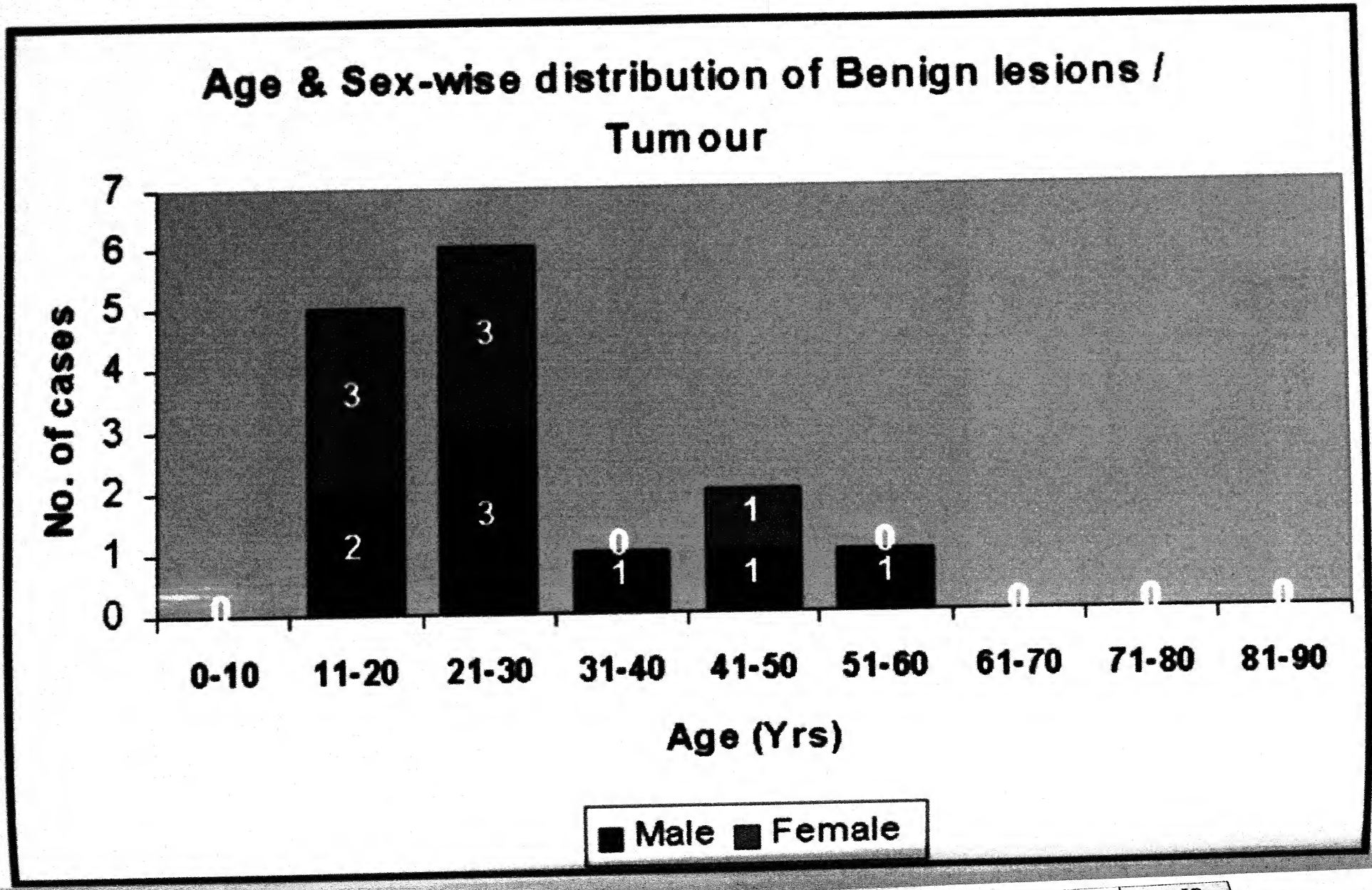

Age & Sex-wise distribution of Benign lesions / Tumour
No. of cases
0
1
2
3
4
5
6
7
0
3
2
3
3
0
1
1
1
0
1
0
0
0
0-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
Age (Yrs)
Male
Female

TABLE -12

Age & Sex-wise distribution of Benign lesions / Tumour

S. No.	Age (yrs)	No. of cases (15)	Sex	
			Male	Female
1.	0-10	- (0.0)	- (0.0)	- (0.0)
2.	11-20	5 (33.3)	2 (13.3)	3 (20.0)
3.	21-30	6 (40.0)	3 (20.0)	3 (20.0)
4.	31-40	1 (6.7)	1 (6.7)	- (0.0)
5.	41-50	2 (13.3)	1 (6.7)	1 (6.6)
6.	51-60	1 (6.7)	1 (6.7)	- (0.0)
7.	61-70	- (0.0)	- (0.0)	- (0.0)
8.	71-80	- (0.0)	- (0.0)	- (0.0)
9.	81-90	- (0.0)	- (0.0)	- (0.0)

(%) Percentage in paranthesis

Table –12 shows age and sex-wise distribution of benign lesions/ tumour. Maximum number of 6 cases (40.0%) were observed in 21-30 yrs of age range, out of which 3 (20.0%) were male and 3 (20.0%) were female. 5 cases (33.3%) belonged to 11-20 yrs age range, out of which 2 (13.3%) were male and 3 (20.0%) were female. 2 cases (13.3%) were observed in 41-50 yrs of age range, out of which 1 (6.7%) was male and 1 (6.6%) was female. Whereas only 1 case (6.7%) each was observed in 31-40 yrs age range and 51-60 yrs age range. Both cases were male.

CHART- 13

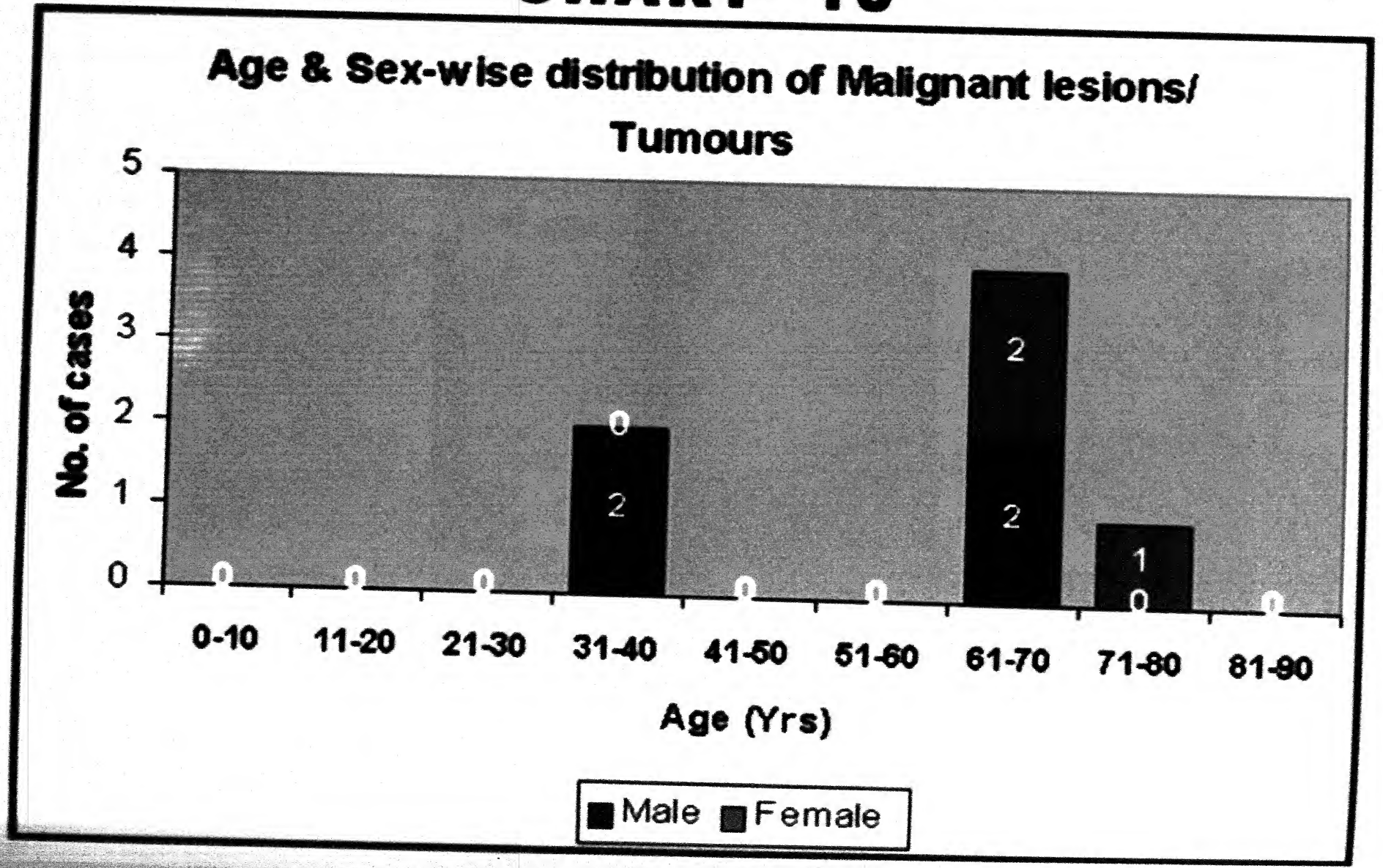

Age & Sex-wise distribution of Malignant lesions/ Tumours
No. of cases
5
4
3
2
1
0
0
0
0
2
0
0
2
2
1
0
0-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
Age (Yrs)
Male
Female

TABLE -13

Age & Sex-wise distribution of Malignant lesions/ Tumour

S. No.	Age (yrs)	No. of cases (7)	Sex	
			Male	Female
1.	0-10	- (0.0)	- (0.0)	- (0.0)
2.	11-20	- (0.0)	- (0.0)	- (0.0)
3.	21-30	- (0.0)	- (0.0)	- (0.0)
4.	31-40	2 (28.6)	2 (28.6)	- (0.0)
5.	41-50	- (0.0)	- (0.0)	- (0.0)
6.	51-60	- (0.0)	- (0.0)	- (0.0)
7.	61-70	4 (57.1)	2 (28.6)	2 (28.5)
8.	71-80	1 (14.3)	- (0.0)	1(14.3)
9.	81-90	- (0.0)	- (0.0)	- (0.0)

(%) Percentage in paranthesis

Table –13 shows age and sex-wise distribution of malignant lesions/ tumour. Maximum number of 4 cases (57.1%) were observed in 61-70 yrs age range, out of which 2 (28.6%) were male and 2 (28.5%) were female. 2 cases (28.6%) were observed in 31-40 yrs age range, both were male where as only 1 female (14.3%) case belonged to 71-80 yrs age range.

CHART - 14

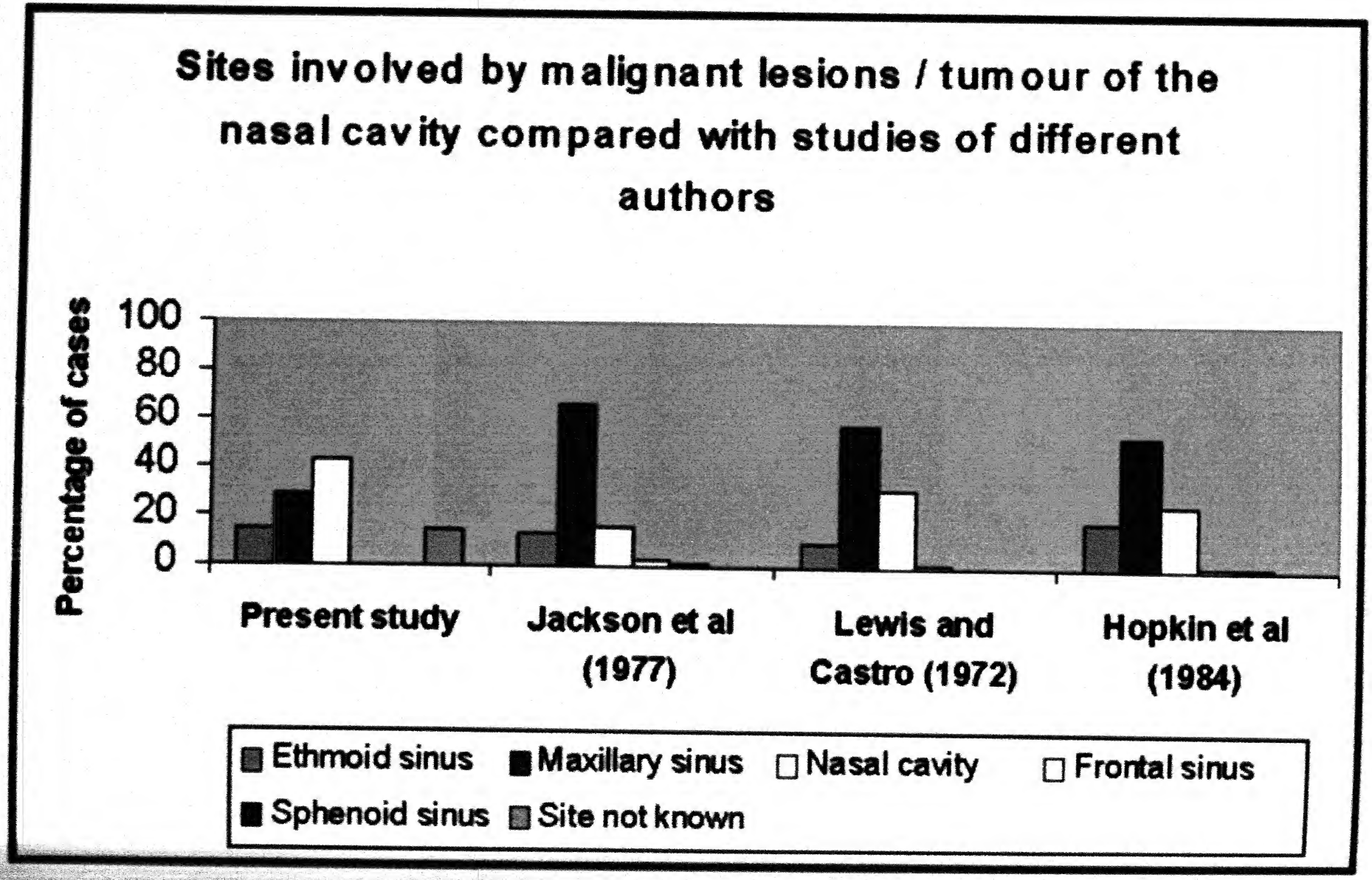


Table -14

S. No.	Site	Sites involved by malignant lesions / tumour of the nasal cavity compared with studies of different authors
1	Eth	
2	Max	
3	Nas	
4	Fro	
5.	Sph	
6	Site	

observed in
(42.8%) wh
cases (14.2%
known.

TABLE -14

Sites involved by malignant lesions / tumour of the nasal cavity compared with studies of different authors

S. No.	Sites	Present study	Jackson et al (1977)	Lewis and Castro (1972)	Hopkin et al (1984)
1.	Ethmoid sinus	1 (14.2)	15 (13)	75 (10)	107 (19)
2.	Maxillary sinus	2 (28.8)	77 (67)	451 (58)	295 (53)
3.	Nasal cavity	3 (42.8)	19 (16)	237 (31)	147 (26)
4.	Frontal sinus	- (0.0)	3 (3)	6 (0.6)	7 (1.2)
5.	Sphenoid sinus	- (0.0)	1 (1)	3 (0.4)	5 (0.9)
6.	Site not known	1 (14.2)	-(0-0)	- (0.0)	- (0.0)
	Total	7	115	772	561

Table –14 shows site involvement by different malignant lesions as observed in present study. Nasal cavity was the common site in 3 cases (42.8%) where as maxillary sinus was the site in 2 cases (28.8%) and in 1 cases (14.2%) ethmoidal sinus was site. In 1 case (14.2%) site was not known.

CHART - 15

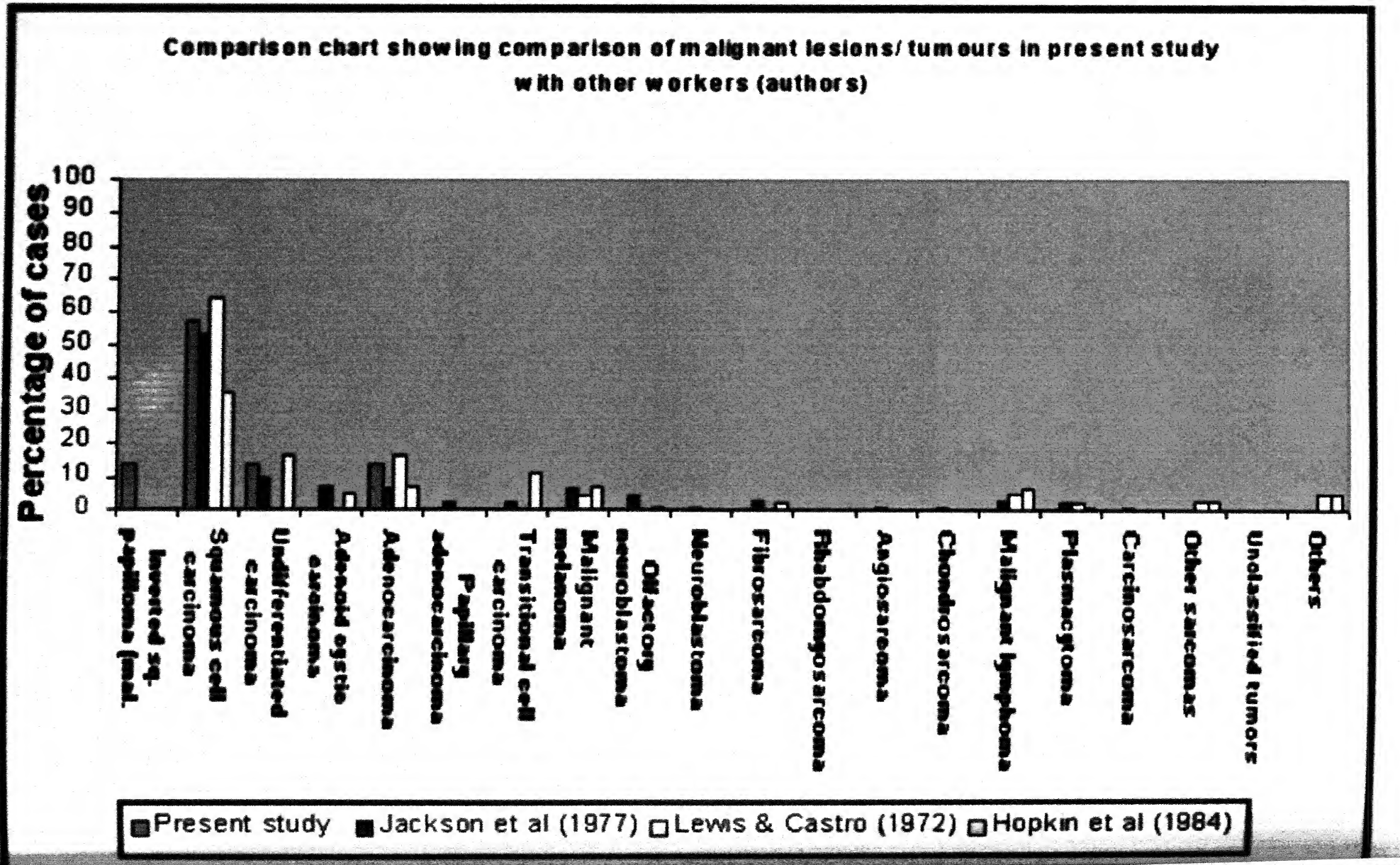

Comparison chart showing comparison of malignant lesions/ tumours in present study with other workers (authors)
Percentage of cases
100
90
80
70
60
50
40
30
20
10
0
Others
Unclassified tumors
Other sarcomas
Carcinosarcoma
Plasmacytoma
Malignant lymphoma
Rhabdomyosarcoma
Angiosarcoma
Chondrosarcoma
Fibrosarcoma
Neuroblastoma
Olfactory neuroblastoma
Malignant melanoma
Transitional cell carcinoma
Papillary adenocarcinoma
Adenocarcinoma
Adenoid cystic carcinoma
Undifferentiated carcinoma
Squamous cell carcinoma
Inverted sq. papilloma (mal.
Present study
Jackson et al (1977)
Lewis & Castro (1972)
Hopkin et al (1984)

TABLE -15

Comparison chart showing comparison of malignant lesions/ tumours in present study with other workers (authors)

S. No.	Types	Present study	Jackson et al (1977)	Lewis & Castro (1972)	Hopkin et al (1984)
1.	Inverted squamous cell papilloma with early malignant changes	01 (14.3)	-	-	-
2.	Squamous cell carcinoma	04 (57.1)	61 (53)	496 (64)	201 (36)
3.	Undifferentiated carcinoma	01 (14.3)	11 (10)	-	92 (17)
4.	Adenoid cystic carcinoma	-	8 (7)	-	30 (5)
5.	Adenocarcinoma	01 (14.3)	7 (6)	129 (17)	40 (7)
6.	Papillary adenocarcinoma	-	2 (2)	-	-
7.	Transitional cell carcinoma	-	2 (2)	-	60 (11)
8.	Malignant melanoma	-	7 (6)	34 (4)	39 (7)
9.	Olfactory neuroblastoma	-	5 (4)	-	3 (1)
10.	Neuroblastoma	-	1 (1)	-	-
11.	Fibrosarcoma	-	3 (3)	-	11 (2)
12.	Rhabdomyosarcoma	-	-	-	-
13.	Angiosarcoma	-	1 (1)	-	-
14.	Chondrosarcoma	-	1 (1)	-	-
15.	Malignant lymphoma	-	3 (3)	40 (5)	35 (6)
16.	Plasmacytoma	-	2 (2)	13 (2)	8 (1)
17.	Carcinosarcoma	-	1 (1)	-	-
18.	Other sarcomas	-	-	23 (3)	16 (3)
19.	Unclassified tumors	-	-	-	-
20.	Others	-	-	37 (5)	25 (5)
	TOTAL	7	115	772	561

Table15 shows malignant lesions / tumour as observed in present study. Out of 7 malignant lesions / tumours inverted squamous cell papilloma with early malignant changes, undifferentiated carcinoma and adenocarcinoma was the diagnosis in 1 case (14.3%) each. 4 cases (57%) were diagnosed as squamous cell carcinoma.

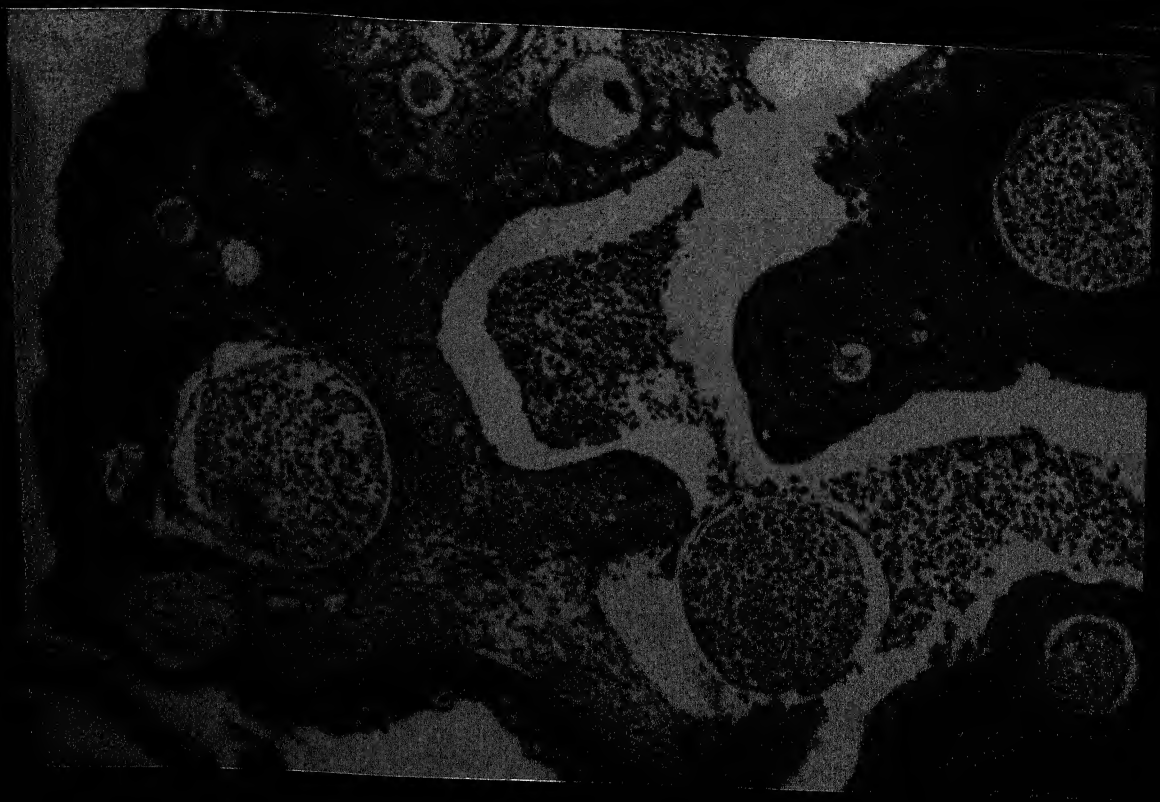


Fig-1 : Microphotograph of Nasal Rhinosporidiosis. H&E×70

Fig-2 : Microphotograph of Nasal Rhinosporidiosis showing sporangia and fungal spores. H&E×280

Fig-3 : Microphotograph of Rhinosporidiosis PAS stain showing PAS(+ve) fungal spores. H&E×280

Fig-4 : Microphotograph showing inverted papilloma. H&E×70

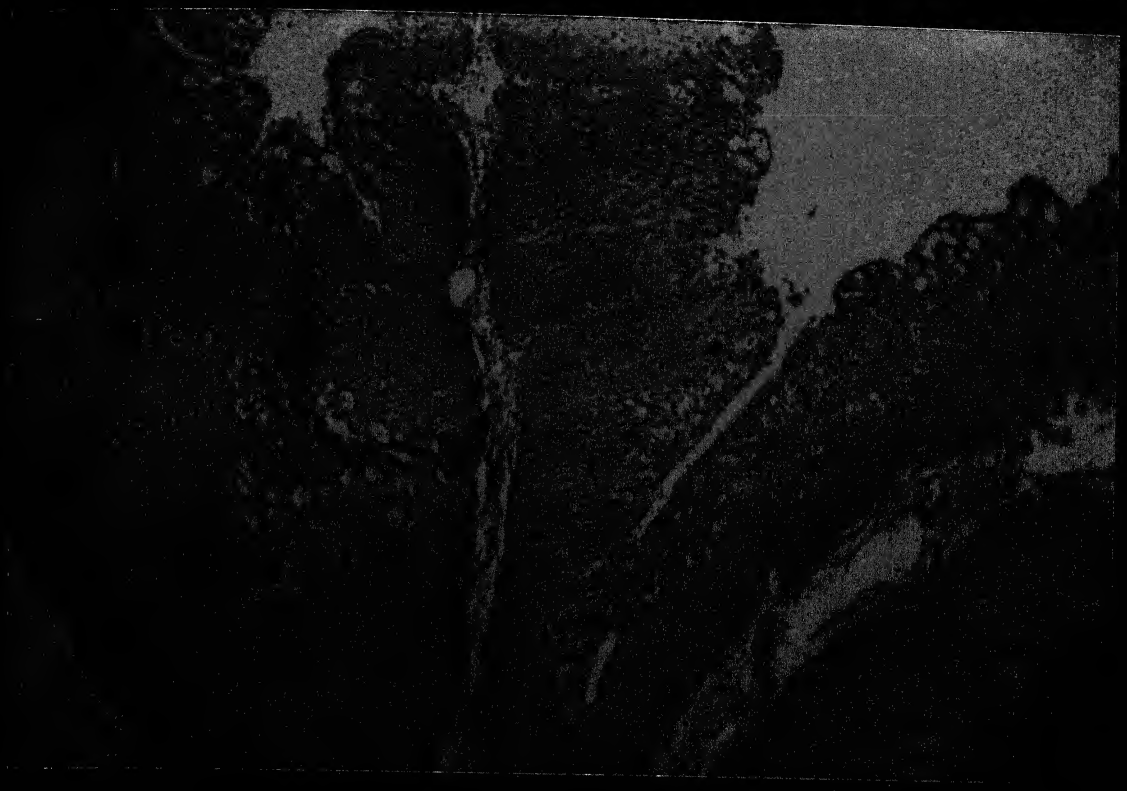


Fig-5 : Microphotograph showing inverted papilloma. H&E×70

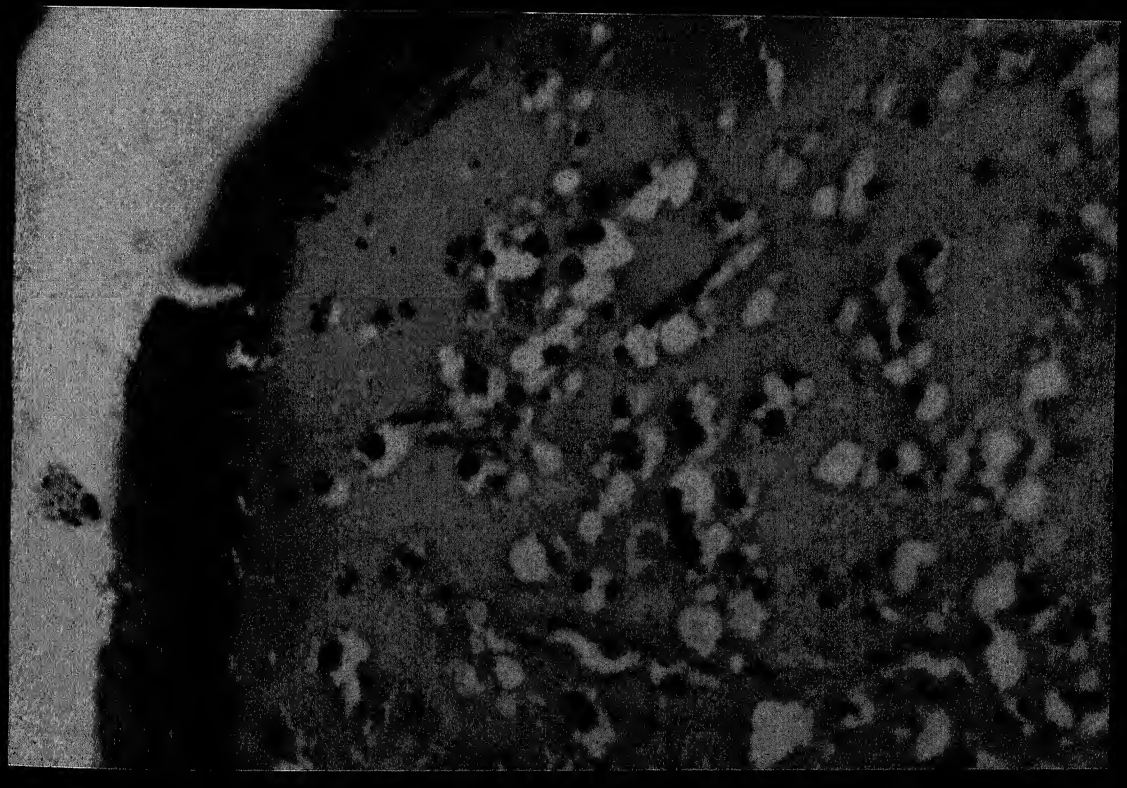


Fig-6 : Microphotograph – Inflammatory polyp with surface epithelium and edematous stroma. H&E×280

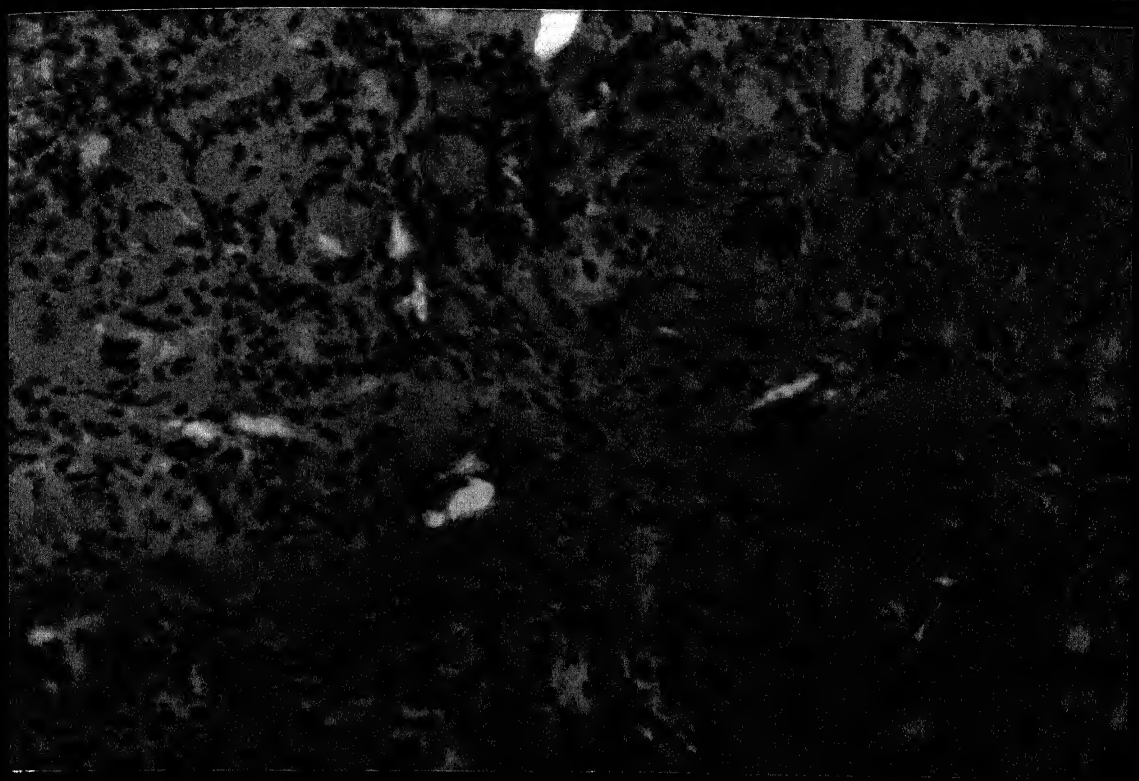


Fig-7 : Microphotograph of Nasal Neurilemmoma. H&E×70

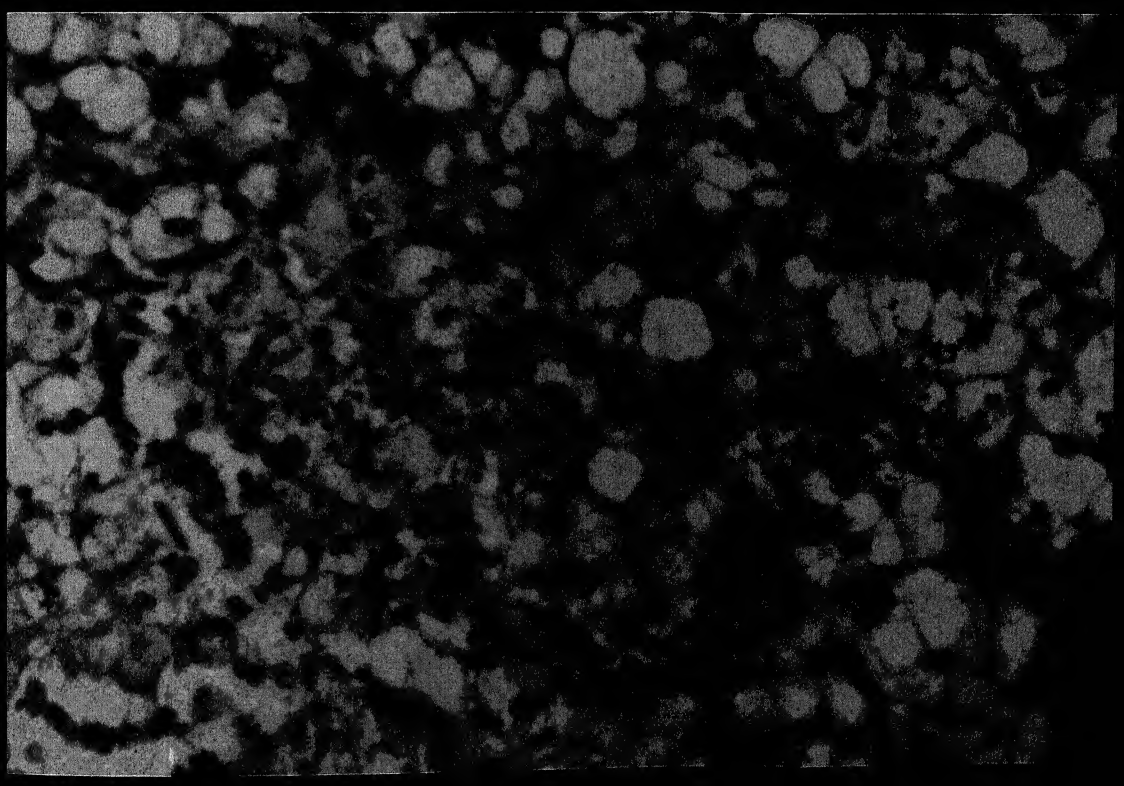


Fig-8 : Microphotograph of Rhinoscleroma showing granulomatous masses. H&E×280

Fig-9 : Microphotograph of Allergic polyp with stromal of infiltration by inflammatory cells. H&E×70

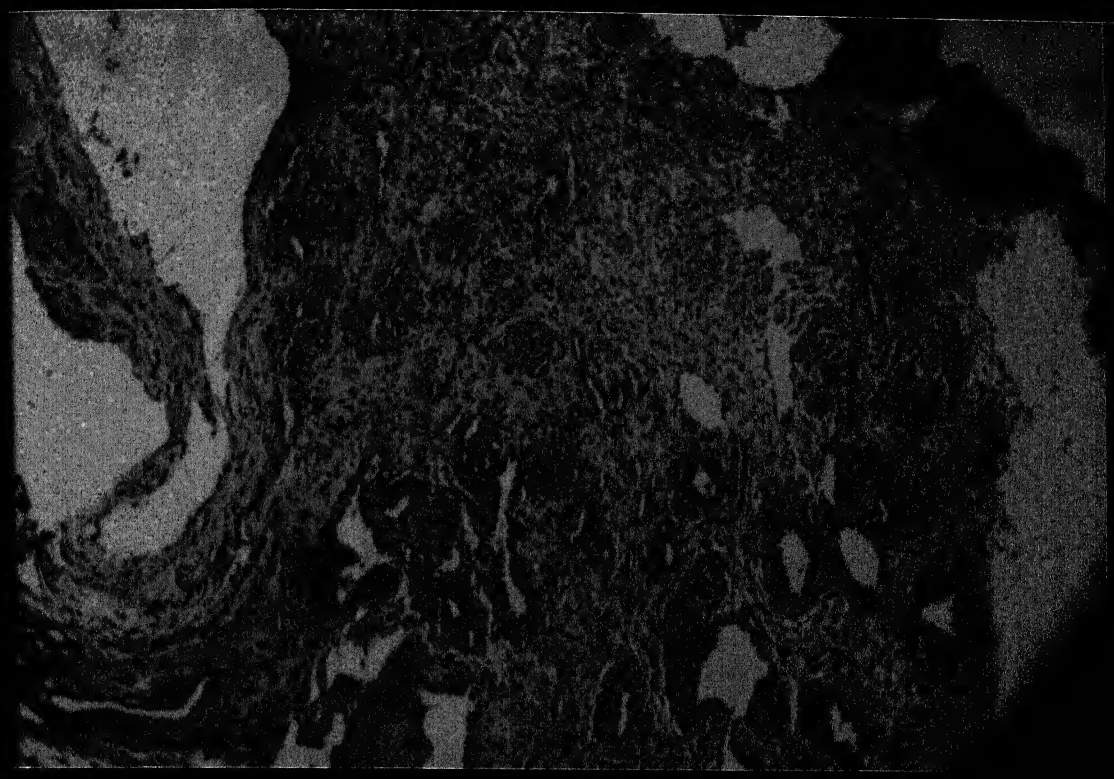


Fig-10 : Microphotograph of angiofibroma. H&E×70

Fig-11 : Microphotograph of well differentiated squamous cell carcinoma (Gr.I) with malignant squamous pearls. H&E×70

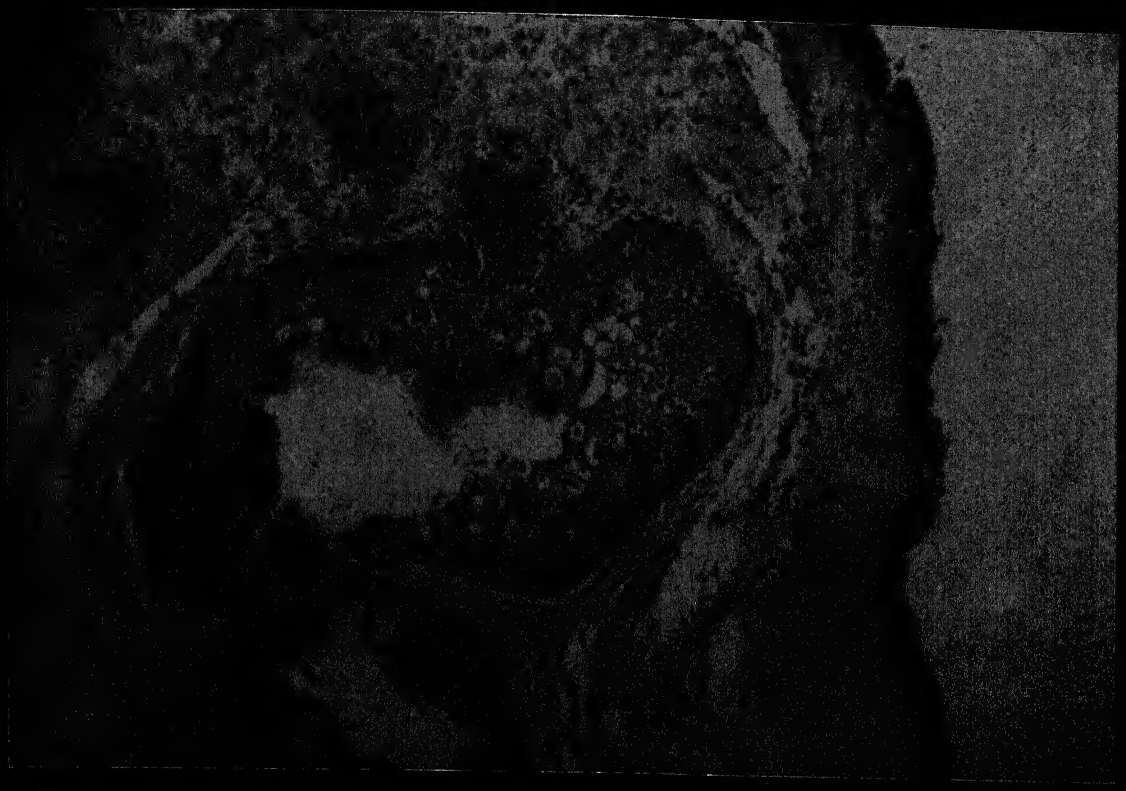


Fig-12 : Microphotograph showing inverted papilloma with early malignant changes in the epithelial cells. H&E×70

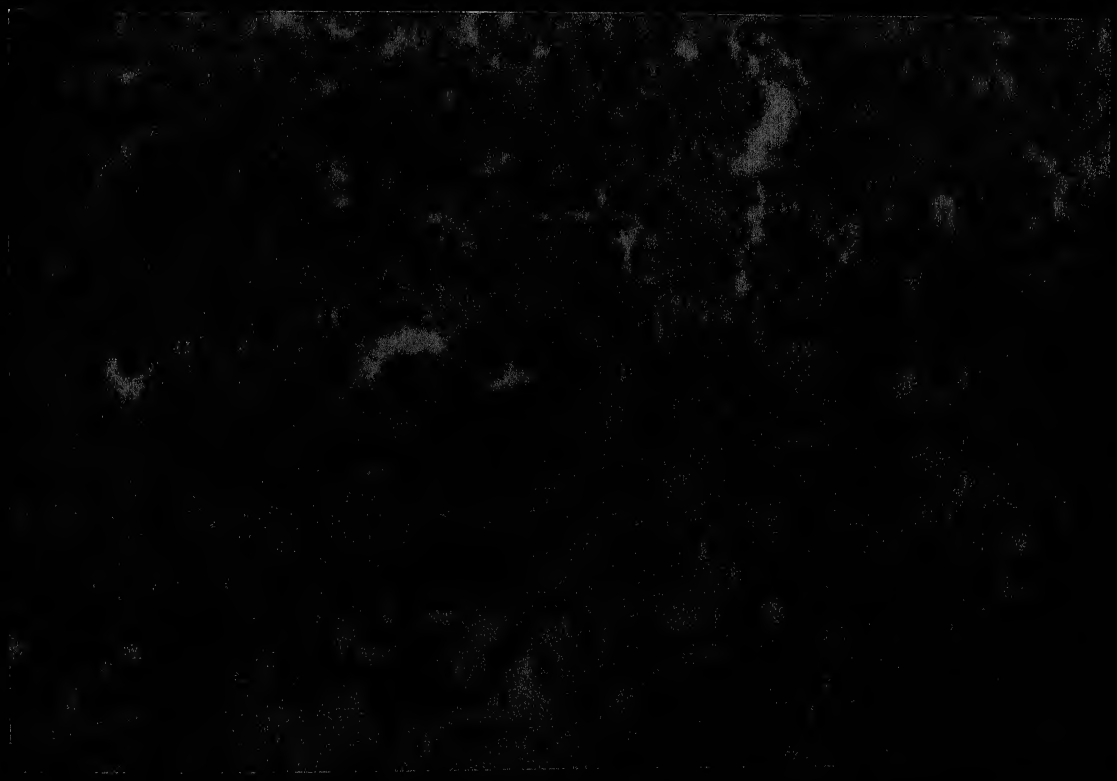


Fig-13 : Microphotograph of inverted papilloma with early malignant changes – cells showing invasion of surrounding stroma. H&E×280

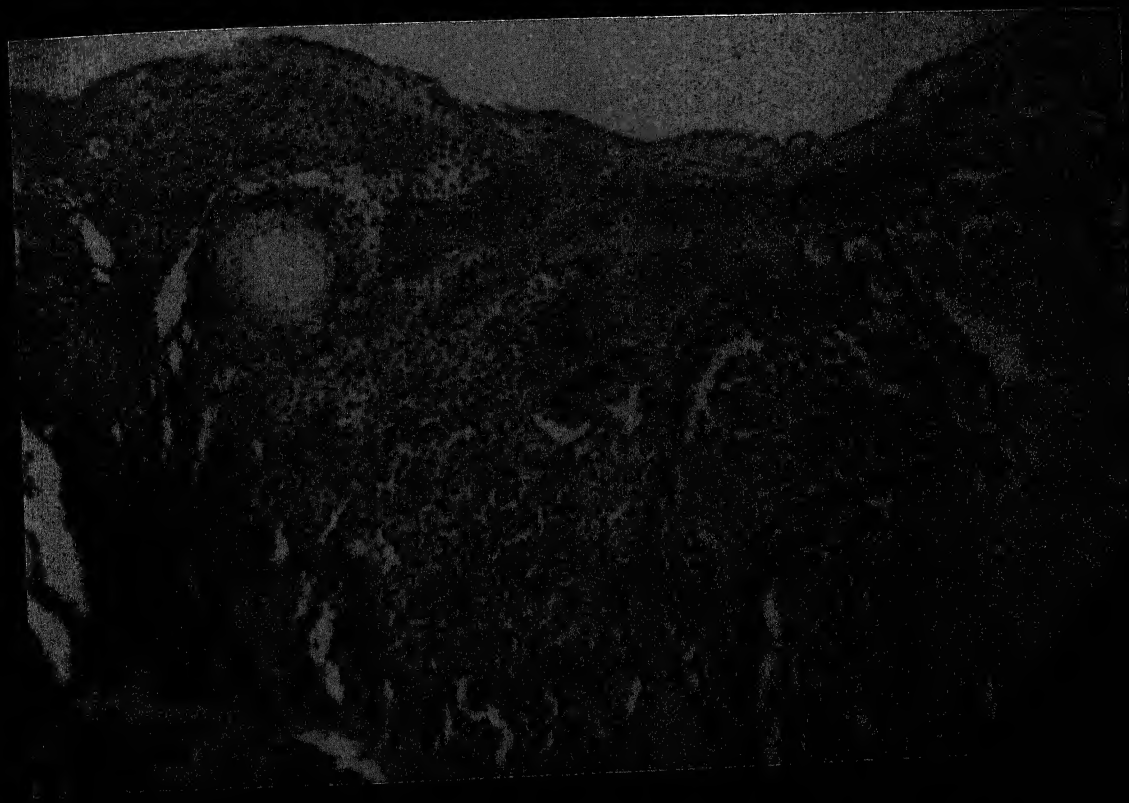


Fig-14 : Microphotograph showing tuberculous granuloma. H&E×70

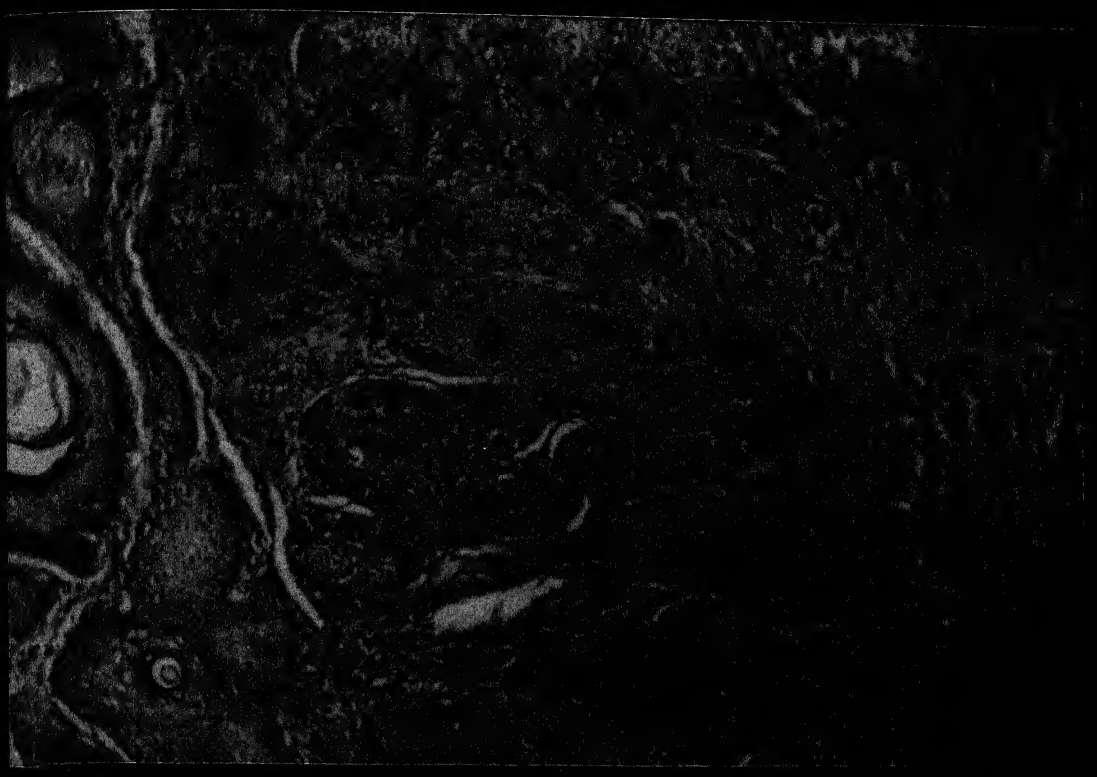


Fig-15 : Microphotograph –Nasal adenocarcinoma with low magnification. H&E×70

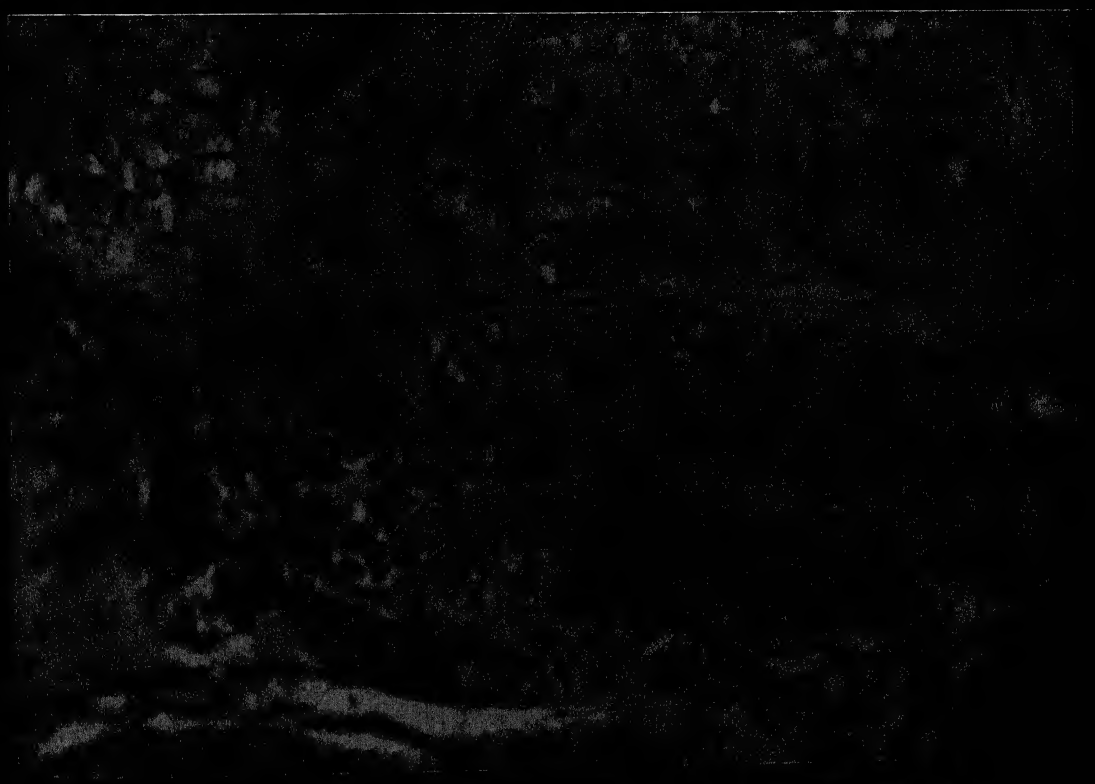


Fig-16 : Microphotograph –Nasal adenocarcinoma with high magnification. H&E×280

Fig-17 : Microphtograph of choanal polyp. H&E×70

Discussion

Discussion

Present work entitled "Tumour and Tumour like nasal masses" consisted of patients attending and admitted to OPD and In patients of ENT, General Surgery Departments, MLB Medical College, Hospital Jhansi. The study also included cases from pathology records between year 2000-2006 available in the pathology department.

The incidences of various conditions- including inflammatory, benign and malignant conditions in nasal cavity is arising more, so polypoidal condition affecting nasal cavity is on the rise. In most of the cases occupational exposures to various irritants (fumes, various metals including nickel and chromium) has been blamed as the causative factor by various authors. Evidences in support of the concept about inflammatory polypi predisposing or getting converted to carcinoma has been inconclusive.

Nasal polyps are most frequent nasal masses which come across in various histopathological analysis Friedman (1976) and Wilkes (1978).

The study consisted of analysis of 67 cases.

Urban cases predominated over Rural cases with the ratio of (1.3:1). The present data about the regional incidence could not be correlated with other studies. Since similar studies have not been conducted.

Hindu patients predominated over Muslims with the ratio of (15.7:1). This can be explained since population in this area is predominated by Hindus. Cases belonging to other communities were not observed.

Present findings could not be correlated due to paucity of such work not available in the literature.

As regard sex, present study shows male predominance over female with the male female ratio as (1.5:1). Similar male preponderance has been reported by Vaideswar et al (1999) and Bhardwaj et al (1998) with incidence of (2:1) separately. Similar male preponderance have been shown by Dandapath et al in 1993. The explanation for male predominance in our study can be provided on the basis of outdoor activities, jobs, occupational hazards to which males are exposed too.

As to age maximum cases belong to childhood cases from 11-20 years which was followed by patients in 21-30 and 31-40 years. Small number of cases belong to after the age of 40 extending upto 80 years. This presentation or pattern reflex the occurrence of nasal lesions including polypoidal masses in early childhood extending upto early adulthood which can be explain on the basis of outdoor activities and job exposures among persons belonging to this age. The incidence shows decline as the age advances, when the malignant lesions or cancers are the most common entities. The preponderance pattern of our cases closely resembles the pattern observed in the case study by Dandapath et al (1993). Number of cases again were small after the age of 50, in the same study. Mostly cases after the age of 50 had malignant lesions. Similar presentation about the cancer has been reported in various texts and studies viz. Bhardwaj et al (1998), Steven G Silverberg (3rd Ed).

Anderson MC (10th Ed), Symmers (2nd Ed), Willis (4th Ed), Vincent T Devita (7th Ed.).

The cases most commonly presented in the form of nasal masses as well as nasal blocked. Some cases presented as in the form of epistaxis and watery nasal discharge associated with sneezing. The pattern observed in our study has been found to be similar to the observations made by Facon et al (2003), Vaideeswar et al (1999) and Johansson et al (2004).

Present study showed predominance of inflammatory lesions including nasal polyps over other benign and malignant tumours. Inflammatory conditions included – rhinoscleroma, rhinitis and rhinosporidiosis. Benign lesions included – hemangioma, papilloma and neurilemmoma. 7 cases of malignant lesions /tumour were observed included – squamous cell carcinoma, adenocarcinoma and undifferentiated carcinoma. Inflammatory lesions were more common in males as compared to females with ratio of (1.6:1) where as benign lesions had male to female ratio (1.1:1) and the ratio incidence as regard malignant lesions was (1.3:1).

As regards duration of symptoms in nasal masses the longest duration was upto 12 years whereas duration of symptoms was shortest upto 2 years in good number of cases. This duration pattern could not be compared as analysed since such studies were not available in the literature.

As regard histopathological diagnosis of nasal masses inflammatory lesions superseeded benign and malignant lesions. Nasal polyps included

both inflammatory and allergic in which inflammatory polyps predominated in a ratio of 5:1. Other chronic specific inflammatory lesions included rhinosporidiosis 12.0%, rhinoscleroma 2.9% and tuberculosis 5.9%, showing preponderance of rhinosporidiosis over other granulomatous lesions. Other workers – Dasgupta et al (1996), Hell quist HB (1996), Friedmann and Osborn (1976) have analysed solely nasal polypoidal masses who have reported more of allergic cases as compared to inflammatory polyps. This reversal of pattern can be explained on the basis of large number of cases taken for the study by above authors.

If we see the site involvement of nasal polyps the commonest site in present study has been ethmoidal sinus whereas maxillary sinus, turbinates and posterior nasal cavity were also involved. As regard site pattern similar site involvement has been reported in majority of there studies by various authors as Friedmann and Osborn (1976), Fu and Perzin (1997), Ozcan et al (2004) and Larsen and Tos (2004).

As to sex the female to male ratio was 1:1.3 with male preponderance. Similar male preponderance with ratio (1:3) has been reported by Friedmann and Osborn (1976), Petruson et al (1988).

Among granulomatous lesions rhinosporidiosis was diagnosed in 12% of the cases. Mostly cases belonged to farmers and school going children with preponderance in male patients. Other studies conducted by different authors as Preethi et al (1999), Dube et al (1964), Sammadar and Sen (1990), Makannavar and Chavan (2001) have reported preponderance of

rhinosporidiosis in male patients. Hence our findings correlate well with theirs.

As regards benign lesions which accounted for 22.5% of all the cases analysed, study showed 16.6% of hemangiomas included capillary and cavernous both with capillary type predominating in 16.6% with females predominated as compared to male in ratio of 2:1 whereas cavernous hemangioma was seen only in male patients. This pattern is correlates well with the observations by other workers as Friedmann and Osborn (1976) and Fu and Perzin (1997).

Benign lesions included only 1 case of angiofibroma, was observed in a male patient aged 16 years with a incidence percentage of 1.5%. The sole occurrence of angiofibroma in male patient has been amply supported and reported by Friedmann and Osborn (1976), Fu and Perzin (1997), Jerome B Taxy (1996).

Two cases of squamous cell papilloma (inverted) have been reported in present study with overall percentage incidence of 2.9% in male patients and 13.3% incidence among all benign tumours. This correlates well with the study of Vaideeswar et al (1999) who reported a incidence of 17.4% of papillomas among benign tumours. This may be due to lesser number of cases analysed.

A single case of Neurilemmoma was observed in female patient with nasal mass and blocked. This finding could not be compared with findings of other.

As regards malignant lesions which constituted 10.4% of all the cases analysed, study showed that malignant lesions in present series are mostly occur in the 61-70 yr age range (57%) with equal sex ratio (1:1). Our findings are in accordance with the reported findings of Friedmann and Osborn (1976), MacComb & Martin (1942), Ringertz (1938).

Out of 7 malignant lesions / tumour which constituted 10.4% of all the cases analysed included squamous cell carcinoma (5.9%) with preponderance of grade-III-anaplastic ones. Grade I and Grade II were equally represented. Single cases (1.5%) each of undifferentiated carcinoma and adenocarcinoma respectively are reported. In 1 case squamous cell papilloma showed early malignant changes. The incidence ratio between squamous cell carcinoma (epidermoid carcinoma) and undifferentiated carcinoma came out to be 4:1. The squamous cell carcinoma accounted for 57.1% among malignant tumours. This finding corresponds well with the observation by Jackson et al (1977), Lewis & Castro (1972) and Hopkin et al (1984).

Undifferentiated carcinoma accounted for 14.3% which approximately corresponds to the observation made by Jackson et al (1977) and Hopkin et al who had reported 10% and 17% respectively.

Adenocarcinoma accounted for 14.3% which approximately corresponds to the observation made by Lewis and castro (1972).

The present study of ours has been small involving histopathological aspects of nasal masses, there relationship with clinical settings and basic parameters.

Various aspects as regards malignant lesions in nasal cavity could not be touched upon. The nasal and paranasal cavities are among the commonest sites for carcinomas in nickel workers and industrial exposure to fumes and organic chemicals.

Studies utilizing immunohistological and immunohistochemical methods as well as isolation of viruses (HPV) through screening programmes along with therapeutic and prognostic aspects should be undertaken in future.

Summary & Conclusion

Summary & Conclusion

The present work entitled "Histopathological study of tumours and tumours like nasal masses – A prospective and retrospective study" was conducted in the department of pathology, MLB Medical College, Jhansi.

The material for the study consisted of nasal biopsies from out patient and in-patients admitted to ENT/Surgical wards in MLB Medical College Hospitals, Jhansi.

Present study consisted of analysis of 67 cases. Following conclusions were made -

- Cases from Urban areas predominated over those from Rural areas with a ratio of - 1.3:1.
- Most of the cases were Hindus and rest were Muslims. Hindu Muslim ratio was 15.7:1.
- Males predominated over females with male female ratio as –1.5:1.
- Maximum number of cases with nasal lesions presented above the age of 10 yrs(95.3%).
- Nasal mass and nasal blocked was the most common presenting symptoms followed by epistaxis, watery nasal discharge and sneezing.
- Maximum number of cases of inflammatory nasal lesions were reported in the age group of 11-20 years, while maximum number of cases of benign lesions/ tumour were reported in the age group of 21-30 years.
- Majority of cases of malignant lesions/tumours were reported in the age group of 61-70 yrs.

- In present study, inflammatory lesions accounted for 67.1% of the cases, benign lesions/ tumours 22.5% and malignant lesions/ tumours accounted for 10.4% cases.
- Inflammatory nasal lesions including nasal polyps predominated over other benign and malignant tumours.
- Benign conditions/ tumours included capillary hemangioma as the most common entity accounting 13.7%.
- Malignant lesions/ tumours accounting 10.4%, included squamous cell carcinoma 5.9% with preponderance of grade III (anaplastic) 2.9%, undifferentiated carcinoma 1.5%, adenocarcinoma 1.5% and one case of squamous cell papilloma show early malignant changes 1.5%.
- It was observed as the age advances the incidence of neoplastic conditions show increase trends.
- Nasal and paranasal cavities are among the commonest sites for malignancies viz carcinomas in nickel workers and industrial exposure to fumes and organic chemicals.
- It was desired that study should be large and subjected to other methods viz immunohistological, immunohistochemical methods as well as isolation of viruses [e.g. HPV] through various screening programmes so that a better understanding be made and which will help in achieving better therapeutic and prognostic parameters in patients with nasal mass with special reference to cancer patients.

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